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PATENT
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BOARD OF PATENT APPEALS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: McKenney

SERIAL NO.: 09/884,597

FILING DATE: June 18, 2001

FOR: **Software Implementation of
Synchronous Memory
Barriers**

Group Art Unit: 2122

Examiner: Zhen, W.

TRANSMITTAL LETTER

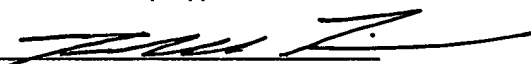
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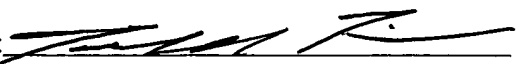
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Rochelle Lieberman, Reg. No. 39,276

Enclosed is a Brief in Support of Appeal in triplicate with copies of all references which were relied upon by Appellant, in triplicate, and a Credit Card Payment Form in the amount of \$340.00 pursuant to 37 C.F.R. §1.17(c).

Respectfully submitted,

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PATENT

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BRIEF OF PATENT OWNER ON APPEAL

1. Real Party in Interest

International Business Machines Corporation, a New York corporation, is the real party in interest.

2. Related Appeals and Interferences

There are no related appeals or interferences.

3. Status of Claims

Claims 1-28 remain pending in the application. The claims on Appeal are included in the Appendix.

4. Status of Amendments

There are no amendments to the claims after final rejection.

5. Summary of the Invention

With reference to Fig. 4, reproduced here below, Applicant's invention is a computer system incorporating the requirement for execution of a memory barrier instruction by each CPU in a multiprocessing computer system in response to at least one of the processors making a change to a shared resource, such as a data structure.

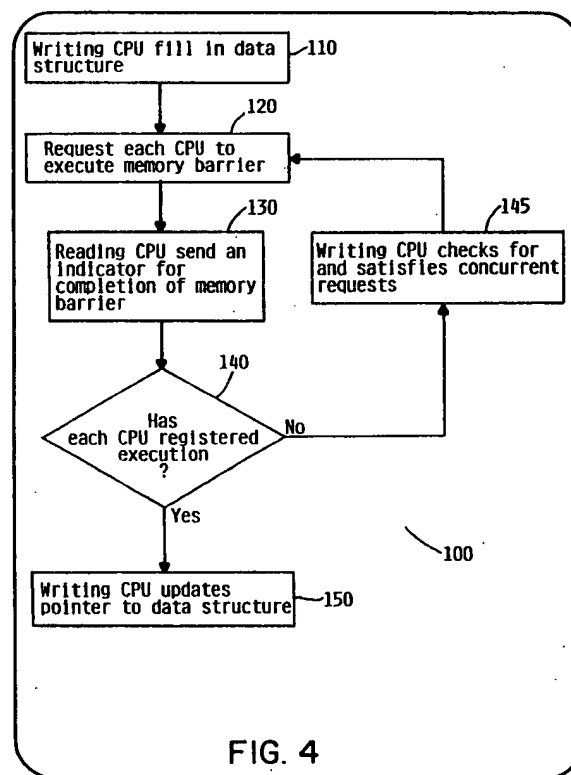


Figure 1 (Figure 4 of Applicant, U.S. Patent Application Serial No. 09/884,597.)

The CPU making a change to the shared resource is known as a writing CPU, and the CPU reading the shared resource is known as a reading CPU. After the writing CPU has written a

change to the shared resource, each reading CPU in the system is forced to execute a memory barrier instruction. Execution of the memory barrier instruction invalidates old data stored within the respective CPU's cache and removes the old data from the cache. Following execution of the memory barrier instruction, each reading CPU sends an indicator to a memory location to record execution of the memory barrier instruction. When each CPU has registered completion of the memory barrier instruction and registered this completion at the memory location, then the writing CPU may update a pointer to the modified data structure. Until the writing CPU confirms execution of the memory barrier instruction at the memory location, the writing CPU does not update the pointer to the modified data structure. Accordingly, execution and registration of completion of the memory barrier instruction ensures that each reading CPU is not reading invalidated data or data that is in the process of being invalidated by the writing CPU.

6. Issues

Claims 1, 2, 10, 11, 16, 21, 23, and 25 are rejected under 35 U.S.C. §102(b) as being anticipated by *Temma et al.* Claims 8, 9, 18-20, and 22 are rejected as being unpatentable over *Temma et al.* under 35 U.S.C. §103(a). Claims 27-28 are allowed. Claims 3-7, 12-15, 17, 24, and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claims and any intervening claims.

7. Grouping of Claims

There are two groupings of claims. Applicant has separated the pending claims into four different groups as the claims in the different groups do not stand or fall together, and hereby requests separate consideration of the claims in each of the separate groups.

Group I: Claims 1, 10, and 21 are rejected on the *Temma et al.* patent. The Examiner asserts that all of the elements of these claims are anticipated

under 35 U.S.C. §102(b).

Group II: Claims 2, 11, and 23 are rejected on the *Temma et al.* patent. The Examiner asserts that all of the elements of these claims are anticipated under 35 U.S.C. §102(b).

Group III: Claims 16 and 25 are rejected on the *Temma et al.* patent. The Examiner asserts that all of the elements of these claims are anticipated under 35 U.S.C. §102(b).

Group IV: Claims 8-9, 18-20, and 22 are rejected on the *Temma et al.* patent. The Examiner asserts that all of the elements of these claims are obvious under 35 U.S.C. §103(a).

ARGUMENT

I. Group I: Rejection of Claims 1, 10, and 21 under 35 U.S.C. §102(b).

In the Official Action of March 17, 2004, the Examiner rejected claims 1, 10, and 21 under 35 U.S.C. §102(b) as being anticipated by *Temma et al.*, U.S. Patent No. 5,796,996.

The *Temma et al.* patent provides background of prior art pertaining to an abnormality in writing from an internal output buffer to an external output buffer, or in writing from the external output buffer to external memory. See Col. 1, lines 57-59. The solution provided in the prior art is shown for a single CPU system. See Figs. 1-4. The problem addressed in *Temma et al.* is solved by synchronizing completion of the writing operation of the memory mapped register with completion of execution of the CPU instruction. See Col. 2, lines 60-62. More specifically, the prior art discussion shows synchronously executing the writing operation of the memory mapped register with the execution of the CPU instruction by the forced ejection of the output buffer. See Col. 3, lines 19-21. This is a portion of a memory barrier instruction

performed on a single CPU system, it is not a complete memory barrier instruction. Memory barrier instructions are known in the art as a series of instructions which cause a CPU in a multiple CPU system to enforce an ordering constraint on memory operations. In fact, the actual invention of *Temma et al.* applies a “sync buffer circuit” to a multiple CPU system to resolve issues with the single CPU system and abnormalities found in writing from an internal buffer to an external buffer or external memory. The synchronization of the operations of the prior art discussed in *Temma et al.* is a software solution to the shortcomings of the prior art in a single CPU system, while the “sync buffer circuit” of *Temma et al.* is a hardware solution to the shortcomings of the prior art in a multiple CPU system. However, neither the prior art discussed in *Temma et al.* nor the invention of *Temma et al.* teaches the application of memory barrier instructions as a strictly software solution to resolving memory consistency in a shared resource of a multiple CPU system as claimed by Applicant. Accordingly, the prior art solution discussed in the Background of *Temma et al.* is clearly resolving a “write abnormality” in a single CPU system and does not provide a software solution to resolve memory consistency in a shared resource of a multiple CPU system.

There are several areas where Applicant’s invention differs from that shown in the prior art of *Temma et al.* First is the fact that the prior art of *Temma et al.* pertains to a single CPU system, and another is the difference between a hardware solution and a software solution. Each of Figures 1-4 which include the depiction “Prior Art” show a single CPU system. The only figures of *Temma et al.* that show a multiple CPU system are the figures relating to the actual invention of *Temma et al.* which employs a “sync buffer circuit”, *i.e.* a hardware solution in a multiple CPU system. Applicant is claiming a software solution to resolving memory consistency in a multiple CPU system. As seen in claims 1, 10, and 21, Applicant is claiming “each CPU”, which clearly defines that there are two or more CPUs employed. Although the invention of *Temma et al.* may pertain to a multiple CPU system, the invention of *Temma et al.* provides a hardware solution in a multiple CPU system, not a software solution as claimed by Applicant. The only portion of *Temma et al.* that suggests resolving shortcomings of the prior art through software is with respect to Figs. 1-4. The preamble of claim 1 of Applicant specifically states “emulating sequential consistency in software”. Clearly, Applicant is not

claiming a hardware solution in a multiple CPU system. Applicant is claiming a software solution that employs multiple CPUs.

Furthermore, as is clearly stated in claims 1, 10, and 21, “each CPU” in the system is “forced” to execute a memory barrier instruction. Clearly, two or more CPUs are being “forced” to execute a memory barrier instruction as stated by use of the language “each”. As shown in Figs. 1-4 of *Temma et al.*, there is only one CPU being subject to a synchronous operation. Part of the synchronous operation includes a “forced ejection of the output buffer”. However, a forced ejection of the output buffer is only a portion of the synchronous operation, it is not the entire operation. As is known in the art, a memory barrier instruction is a series of instructions, not a single operation within an instruction. Although the ejection of the output buffer may be considered a portion of a memory barrier instruction, it does not constitute an entire memory barrier instruction. The “force” that Applicant is claiming is for execution of an entire memory barrier instruction, not a portion of the instruction. Furthermore, the “force” that Applicant is claiming for execution of the memory barrier instruction is for each CPU, *i.e.* two or more CPUs. *Temma et al.* only shows the “force” associated with what may be considered a portion of a memory barrier instruction, and only for a single CPU. Although the actual invention of *Temma et al.* shows multiple CPUs, it does not show the “force” in the actual invention for a memory barrier instruction for each of the CPUs shown. Accordingly, when Applicant is claiming “forcing each CPU to execute a memory barrier instruction”, Applicant is claiming forcing two or more CPUs to execute a series of instructions.

Another area where Applicant’s invention differs from that shown in the prior art of *Temma et al.* is communication from the CPU following execution of the memory barrier instruction. As shown in the prior art of *Temma et al.*, the forced ejection of the output buffer is what the Examiner is equivocating to a memory barrier instruction. The ejection from the output buffer is communicated to the CPU. See Col. 4, line 3. Since *Temma et al.* does not actually disclose execution of a memory barrier instruction, *Temma et al.* cannot communicate execution of such an instruction. Applicant is claiming the CPU sending an indicator to communicate completion of the memory barrier instruction. Applicant’s CPU does not receive an indicator,

rather Applicant's CPU sends an indicator. In fact, the indicator of Applicant is not sent to the writing CPU. Rather, the indicator of Applicant is sent to a memory location accessible by each CPU in the system. The act of sending and receiving are different functions. To send information is to convey information to a destination; to receive information is to acquire the information. In *Temma et al.*, the CPU is receiving information, and in Applicant's invention each CPU executing the memory barrier instruction is conveying information. More specifically, each, *i.e.* two or more, of Applicant's CPUs is sending the indicator. Accordingly, Applicant is claiming each of the CPUs sending a communication upon completion of the memory barrier instruction.

It has been held that in order for a claimed invention to be anticipated under 35 U.S.C. §102(b), the prior art must teach all claimed limitations presented by the claimed invention. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131 (citing *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987)). *Temma et al.* does not disclose execution of a memory barrier instruction. In fact, a "forced ejection from an output buffer" at most may be considered a portion of a memory barrier instruction, and certainly does not encompass the entire instruction. Furthermore, the portion of *Temma et al.* that teaches the forced ejection of the output buffer is limited to a single CPU system and does not apply to a multiple CPU system. The only portion of *Temma et al.* that applies to a multiple CPU system is shown with a hardware modification in the form of a sync buffer circuit which is not required in Applicant's invention. Finally, upon completion of the forced ejection of the output buffer of *Temma et al.*, there is no communication sent from the CPU indicating completion, rather such a communication is shown as being received by the CPU. There is only one CPU applying this teaching. Applicant is claiming "each" CPU, *i.e.* two or more CPU's, sending a communication. "A previous patent anticipates a purported invention only where, except for insubstantial differences, it contains all of the same elements operating in the same fashion to perform an identical function." *Saunders v. Air-Flo Co.*, 646 F.2d 1201, 1203 (7th Cir. 1981) citing *Popeil Brothers, Inc. v. Schick Electric, Inc.*, 494 F.2d 162, 164 (7th Cir. 1974) (holding patents were not invalid as being anticipated by or obvious in light of prior

art). *Temma et al.* does not anticipate the invention of Applicant based upon the legal definition of anticipation. Although *Temma et al.* relates to a processor and instructions associated therewith, *Temma et al.* fails to show each and every element as presented in Applicant's claimed invention. *Temma et al.* does not show two or more processors executing a series of functions in the form of a memory barrier, and *Temma et al.* does not show two or more processors sending a communication indicating completion of the execution of the series of instructions. Rather, *Temma et al.* shows a single processor executing at most a portion of a memory barrier instruction, and then receiving a notification of such a completion. Accordingly, Applicant respectfully contends that the teachings of *Temma et al.* does not meet the standard set by the CAFC's interpretation of 35 U.S.C. §102(b), and respectfully requests the Board of Patent Appeals rule in Applicant's favor and direct allowance of claims 1, 10, and 21.

II. Group II: Rejection of Claims 2, 11, and 23 under 35 U.S.C. §102(b).

In the Official Action of March 17, 2004, the Examiner rejected claims 2, 11, and 23 under 35 U.S.C. §102(b) as being anticipated by *Temma et al.*, U.S. Patent No. 5,796,996.

The comments and discussion pertaining to *Temma et al.* above are hereby incorporated by reference.

The portion of *Temma et al.* that is being applied by the Examiner shows a single CPU system and having the single CPU set to an interrupt masking state. The invention of *Temma et al.* shows a multiple CPU system and a sync buffer circuit applied to resolve the issues in the single CPU system with a hardware implementation in a multiple CPU system. In fact, the sync buffer circuit functions with an interrupt controller. *Temma et al.* does not show "sending an interprocessor interrupt to all CPUs". Something that is shown as an interprocessor by definition means between two processors of which at least one processor is a sending processor and at least one processor is a receiving processor. The background section of *Temma et al.*, as cited by the Examiner, only shows an interrupt masking state because it is a single processor system and by definition a CPU in a single processor system cannot send an interprocessor interrupt. Since

each and every element as set forth in claims 2, 11, and 23 is not either expressly or inherently described in *Temma et al.*, Applicant respectfully contends that the teachings of *Temma et al.* does not meet the standard set by the CAFC's interpretation of 35 U.S.C. §102(b), and respectfully requests the Board of Patent Appeals rule in Applicant's favor and direct allowance of claims 1, 11, and 23.

III. Group III: Rejection of Claims 16 and 25 under 35 U.S.C. §102(b).

In the Official Action of March 17, 2004, the Examiner rejected claims 16 and 25 under 35 U.S.C. §102(b) as being anticipated by *Temma et al.*, U.S. Patent No. 5,796,996.

The comments and discussion pertaining to *Temma et al.* above are hereby incorporated by reference.

The portion of *Temma et al.* being applied to claims 16 and 25 by the Examiner pertain to a single CPU system. As noted in claims 16 and 25, a tool is provided for "each" CPU to register their completion of the memory barrier instruction. The term each implies that there are at least two or more processors. However, as is clearly shown in the Figs. 1-4 of *Temma et al.*, which is the portion being applied by the Examiner, there is only a single CPU. Applicant is claiming "a tool for each CPU", *i.e.* two or more CPU's. "A previous patent anticipates a purported invention only where, except for insubstantial differences, it contains all of the same elements operating in the same fashion to perform an identical function." *Saunders v. Air-Flo Co.*, 646 F.2d 1201, 1203 (7th Cir. 1981) citing *Popeil Brothers, Inc. v. Schick Electric, Inc.*, 494 F.2d 162, 164 (7th Cir. 1974) (holding patents were not invalid as being anticipated by or obvious in light of prior art). *Temma et al.* does not anticipate the invention of Applicant based upon the legal definition of anticipation. Although *Temma et al.* relates to a processor and instructions associated therewith, *Temma et al.* fails to show each and every element as presented in Applicant's claimed invention. *Temma et al.* does not show two or more processors and a tool for each of the two or more processors to register completion of the memory barrier instruction. Rather, *Temma et al.* shows a single processor executing at most a portion of a memory barrier

instruction, and then receiving a notification of such a completion. Accordingly, Applicant respectfully contends that the teachings of *Temma et al.* does not meet the standard set by the CAFC's interpretation of 35 U.S.C. §102(b), and respectfully requests the Board of Patent Appeals rule in Applicant's favor and direct allowance of claims 16 and 25.

IV. Group IV: Rejection of Claims 8-9, 18-20, and 22 under 35 U.S.C. §103(a).

In the Official Action of March 17, 2004, the Examiner rejected claims 8-9, 18-20, and 22 under 35 U.S.C. §103(a) as being unpatentable over *Temma et al.*, U.S. Patent No. 5,796,996.

The comments and discussion pertaining to *Temma et al.* above are hereby incorporated by reference.

a. Differences between the prior art and the claims at issue

In reviewing and studying the prior art reference of *Temma et al.*, it is clear that although *Temma et al.* may contain some of the elements of Applicant's invention, the scope of the contents are divergent in nature. Figs. 1-4 of the *Temma et al.* patent as applied to the above noted claims by the Examiner accounts for a single CPU system. There is no consideration given for multiple CPUs. The array for registering memory barrier requests for "CPUs", as claimed by Applicant, explicitly claims multiple CPUs. As noted earlier, a single CPU does not have a necessity for memory barriers, nor for an array to register completion of the memory barrier. Accordingly, Applicant's invention and *Temma et al.* clearly diverge with respect to the use of memory barrier instructions and application of such in conjunction with a registration array.

b. Discussion of Applicant's Invention in View of the Prior Art References and Prior Art References Failure to Teach All of the Claimed Limitations of Applicant's Invention.

As the CAFC has made clear, the prior art must teach the desirability of the modification.

“The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.” *In re Gordon et al.*, 733 F.2d 900, 221 USPQ 1125, 1127 (Fed. Cir. 1984). It is axiomatic that the subject matter of the claims may not be considered obvious as a result of a hypothetical combination of references unless something in the references suggests that an advantage may be derived from combining their teachings. In this respect, the CAFC appears to speak directly to the issue of the need to determine the scope and contents of the prior art. Accordingly, the determination as to what may be within the scope and contents of the prior art serves to establish the parameters of what art may even be considered in determining the obviousness of an invention.

As noted above, the patent of *Temma et al.* has a forced ejection of an output buffer in a single CPU system. *Temma et al.* does not have a memory barrier, nor an array for “CPUs” to register the memory barrier request. In order to apply *Temma et al.* to Applicant’s pending application, *Temma et al.* must be modified and reconfigured in order to support a system having multiple CPUs and execution of memory barrier instructions when a change to a shared resource is made by one of the CPUs. *Temma et al.* clearly does not show an array for multiple CPUs to register memory barrier requests, as there is no support in *Temma et al.* for a memory barrier and certainly no support for multiple CPUs associated with a software solution to emulate sequential consistency. The only communication that can be implied in *Temma et al.* is clearly a form of direct communication to the single CPU. In order to provide the communication between CPUs, the system of *Temma et al.* must be modified in such a way as to provide that there are multiple CPUs. However, this goes against the teaching of *Temma et al.* with respect to the prior art. “Although a prior art device “may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.” MPEP §2143.01 (citing *In re Mills*, 916 F.2d 680, 682, 16 USPQ 2d. 1430 (Fed. Cir. 1990)). *Temma et al.* does not suggest use of an array to register memory barrier requests by multiple CPUs. To read *Temma et al.* as providing such would require a modification to the invention of *Temma et al.* not envisioned or required in the system of *Temma et al.* In fact, *Temma et al.* teaches away from Applicant’s software solution by addressing a solution to a multiple CPU environment with the use of a hardware solution in the form of a sync buffer circuit. The only suggestion for utilizing

a system with multiple CPUs and an array associated therewith is derived from Applicant's invention. Absent Applicant's invention, there is no suggestion or motivation within *Temma et al.* for such a modification. "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ 2d 1780 (Fed. Cir. 1992) (citing *In re Gorman*, 933 F.2d 982, 987 (Fed. Cir. 1991)). Yet this is the very process that the Examiner has attempted to undertake. Although Applicant's invention may appear to combine elements found in *Temma et al.*, "the inquiry under [35 U.S.C.] §103 is whether prior use makes the picture of the jigsaw puzzle, rather than its pieces obvious." *Kari Corp. v. Wilcox Marsh Buggies & Deadlines*, 708 F.2d 151, 155 (5th Cir. 1983). The entirety of Applicant's invention is greater than the sum of the parts that comprise the novelty of the invention. "[T]he linchpin is not whether the individual components of the patent were obvious at the time of the invention, but whether the aggregation produced a new or different result or achieved a synergistic effect." *Id.* (citing *Continental Oil co. v. Cole*, 634 F.2d 188, 197 (5th Cir. 1981)). Unlike *Temma et al.*, Applicant's invention uses a plurality of CPUs to provide a novel system for emulating sequential consistency in software. Accordingly, Applicant respectfully contends that the teachings of *Temma et al.* does not meet the standard set by the CAFC's interpretation of 35 U.S.C. §103(a), and respectfully requests the Board of Patent Appeals rule in Applicant's favor and direct allowance of claims 8-9, 18-20, and 22.

V. Conclusion

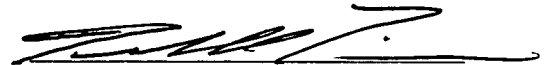
In view of the rejections presented by the Examiner in the Office Action made final, it appears clear on the record that the *Temma et al.* reference does not anticipate nor obviate Applicant's invention based upon the legal definition of anticipation and obviousness. Although the prior art reference cited by the Examiner relates to a computer system having an output buffer therein, the output buffer of *Temma et al.* physically resides within a single CPU system. *Temma et al.* does not exhibit the motivation or suggest the desirability of modifications present such that one skilled in the art would find it obvious to incorporate modifications to enable the communication between CPUs as claimed by Applicant with respect to execution of memory

barrier instructions. In fact, *Temma et al.* neither mentions nor suggests a software solution that incorporates multiple CPUs, nor does it teach or suggest execution of a complete memory barrier instruction. Accordingly, as noted above, it is improper to use Applicant's claimed invention as a template for hindsight reconstruction or as the very means for drawing to the obviousness of the claimed invention even if that could construct the claimed invention where the prior art is otherwise not analogous nor suggests the desirability for one skilled in the art to incorporate such modifications.

Applicant believes that those skilled in the art have failed to solve the problem as claimed by Applicant. Accordingly, for the reasons outlined above, Applicant respectfully requests the Board of Patent Appeals direct allowance of this application and all pending claims.

Respectfully submitted,

By:



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Appendix:

1. A method for selectively emulating sequential consistency in software comprising:
 - (a) forcing each CPU to execute a memory barrier instruction; and
 - (b) having each CPU send an indicator communicating completion of said memory barrier instruction.
2. The method of claim 1, wherein the step of forcing each CPU to execute a memory barrier instruction includes send an interprocessor interrupt to all CPUs.
3. The method of claim 2, further comprising avoiding deadlock by having each CPU that is waiting for other CPUs to execute said memory barrier instruction continuously satisfy concurrent memory barrier execution requests.
4. The method of claim 1, further comprising using a single set of memory barrier instruction executions to satisfy groups of concurrent memory barrier execution requests.
5. The method of claim 4, further comprising assigning a generation number to each group of said memory barrier instruction requests.
6. The method of claim 5, further comprising assigning a current generation number to all arriving memory barrier execution requests while a previous memory barrier execution request is being serviced.
7. The method of claim 1, wherein the step of having each CPU send an indicator communicating completion of said memory barrier instruction comprises said CPUs registering completion of said memory barrier with a tool selected from the group consisting of: an array, a bitmask, and a combining tree.

8. The method of claim 1, further comprising providing an array for CPUs to register memory barrier requests, wherein each array entry corresponds to a memory barrier execution request from a CPU.
9. The method of claim 8, further comprising scanning said array to determine execution of said memory barrier instruction by each CPU.
10. A computer system, comprising:
 - multiple processors;
 - an instruction for forcing each CPU to execute a memory barrier instruction; and
 - an instruction manager for indicating completion of said memory barrier instruction.
11. The system of claim 10, wherein the instruction for forcing each CPU to execute a memory barrier instruction comprises a memory barrier manager for sending an interprocessor interrupt to all CPUs.
12. The system of claim 11, wherein the memory barrier manager includes a waiting instruction to require each CPU waiting for other CPUs to execute said memory barrier instructions to satisfy concurrent memory barrier execution requests.
13. The system of claim 10, wherein the instruction for forcing each CPU to execute a memory barrier instruction comprises a consolidation instruction to satisfy groups of concurrent memory barrier execution requests with a single set of memory barrier instruction executions.
14. The system of claim 13, wherein each group of said memory barrier execution requests is assigned a generation number.
15. The system of claim 14, wherein all memory barrier execution requests that arrive while a previous memory barrier execution request is executing are assigned current

generation numbers.

16. The system of claim 10, wherein the instruction manager includes a tool for each CPU to register completion of said memory barrier instruction.
17. The system of claim 16, wherein said tool is selected from the group consisting of: a bitmask, an array, and a combining tree.
18. The system of claim 10, wherein the instruction manager includes array for CPUs to register memory barrier requests.
19. The system of claim 19, wherein each entry to said array corresponds to a memory barrier execution request from a CPU.
20. The system of claim 19, wherein each requesting CPU scans said array to determine execution of said memory barrier instruction by each CPU.
21. An article comprising:
a computer-readable signal-bearing medium;
means in the medium for forcing each CPU to execute a memory barrier instruction;
and
an instruction manager for indicating completion of said memory barrier instruction.
22. The article of claim 21, wherein the medium is selected from the group consisting of: a recordable data storage medium and a modulated carrier signal.
23. The article of claim 21, wherein the means for forcing each CPU to execute the memory barrier instruction includes a memory barrier manager for sending an interprocessor interrupt to all CPUs.

24. The article of claim 21, wherein each CPU waiting for other CPUs to execute said memory barrier instruction continuously satisfies concurrent memory barrier execution requests.
25. The article of claim 21, wherein the instruction manager includes a tool for each CPU to register completion of said memory barrier instruction.
26. The article of claim 25, wherein said tool is selected from the group consisting of: a bitmask, an array, and a combining tree.
27. A method for selectively emulating sequential consistency in software comprising:
 - (a) forcing each CPU to execute a memory barrier instruction;
 - (b) having each CPU send an indicator communicating completion of said memory barrier instruction;
 - (c) satisfying groups of concurrent memory barrier execution requests with a single set of memory barrier instruction executions; and
 - (d) wherein the step of forcing each CPU to execute a memory barrier instruction includes sending an interprocessor interrupt to all CPUs forcing execution of said memory barrier instruction.
28. The method of claim 27, wherein the step of having each CPU send an indicator communicating completion of said memory barrier instruction comprises said CPUs registering completion of said memory barrier with a tool selected from the group consisting of: a bitmask, an array, and a combining tree.

Brief of Patent Owner on Appeal

REFERENCES & CITED CASES

(In re McKenney, Serial No.:09/884,597)

ences themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

2143.01 Suggestion or Motivation To Modify the References [R-1]

THE PRIOR ART MUST SUGGEST THE DESIRABILITY OF THE CLAIMED INVENTION

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obviousness was held improper.). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).

"In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be

solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In *In re Kotzab*, the claims were drawn to an injection molding method using a single temperature sensor to control a plurality of flow control valves. The primary reference disclosed a multizone device having multiple sensors, each of which controlled an associated flow control valve, and also taught that one system may be used to control a number of valves. The court found that there was insufficient evidence to show that one system was the same as one sensor. While the control of multiple valves by a single sensor rather than by multiple sensors was a "technologically simple concept," there was no finding "as to the specific understanding or principle within the knowledge of the skilled artisan" that would have provided the motivation to use a single sensor as the system to control more than one valve. 217 F.3d at 1371, 55 USPQ2d at 1318.

In *In re Fine*, the claims were directed to a system for detecting and measuring minute quantities of nitrogen compounds comprising a gas chromatograph, a converter which converts nitrogen compounds into nitric oxide by combustion, and a nitric oxide detector. The primary reference disclosed a system for monitoring sulfur compounds comprising a chromatograph, combustion means, and a detector, and the secondary reference taught nitric oxide detectors. The examiner and Board asserted that it would have been within the skill of the art to substitute one type of detector for another in the system of the primary reference, however the court found there was no support or explanation of this conclusion and reversed.

In *In re Jones*, the claimed invention was the 2-(2-aminoethoxy) ethanol salt of dicamba, a compound with herbicidal activity. The primary reference disclosed *inter alia* the substituted ammonium salts of dicamba as herbicides, however the reference did not specifically teach the claimed salt. Secondary refer-

ences teaching the amine portion of the salt were directed to shampoo additives and a byproduct of the production of morpholine. The court found there was no suggestion to combine these references to arrive at the claimed invention.

WHERE THE TEACHINGS OF THE PRIOR ART CONFLICT, THE EXAMINER MUST WEIGH THE SUGGESTIVE POWER OF EACH REFERENCE

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art, and all teachings in the prior art must be considered to the extent that they are in analogous arts. Where the teachings of two or more prior art references conflict, the examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art, considering the degree to which one reference might accurately discredit another. *In re Young*, 927 F.2d 588, 18 USPQ2d 1089 (Fed. Cir. 1991) (Prior art patent to Carlisle disclosed controlling and minimizing bubble oscillation for chemical explosives used in marine seismic exploration by spacing seismic sources close enough to allow the bubbles to intersect before reaching their maximum radius so the secondary pressure pulse was reduced. An article published several years later by Knudsen opined that the Carlisle technique does not yield appreciable improvement in bubble oscillation suppression. However, the article did not test the Carlisle technique under comparable conditions because Knudsen did not use Carlisle's spacing or seismic source. Furthermore, where the Knudsen model most closely approximated the patent technique there was a 30% reduction of the secondary pressure pulse. On these facts, the court found that the Knudsen article would not have deterred one of ordinary skill in the art from using the Carlisle patent teachings.).

FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT SUFFICIENT TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680,

16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432. See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references).

FACT THAT THE CLAIMED INVENTION IS WITHIN THE CAPABILITIES OF ONE OF ORDINARY SKILL IN THE ART IS NOT SUFFICIENT BY ITSELF TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS

A statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art" at the time the claimed invention was made" "because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levensgood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000) (Court reversed obviousness rejection involving technologically simple concept because there was no finding as to the principle or specific understanding within the knowledge of a skilled artisan that would have motivated the skilled artisan to make the claimed invention); *AI-Sue Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999) (The level of skill in the art cannot be relied upon to provide the suggestion to combine references.).

THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) (Claimed device was a blood filter assembly for use during medical procedures wherein both the inlet and outlet for the blood were located at the bottom end of the filter assembly, and wherein a gas vent was present at the top of the filter assembly. The prior art reference taught a liquid strainer for removing dirt and water from gasoline and other light oils wherein the inlet and outlet were at the top of the device, and wherein a pet-cock (stopcock) was located at the bottom of the device for periodically removing the collected dirt and water. The reference further taught that the separation is assisted by gravity. The Board concluded the claims were *prima facie* obvious, reasoning that it would have been obvious to turn the reference device upside down. The court reversed, finding that if the prior art device was turned upside down it would be inoperable for its intended purpose because the gasoline to be filtered would be trapped at the top, the water and heavier oils sought to be separated would flow out of the outlet instead of the purified gasoline, and the screen would become clogged.).

"Although statements limiting the function or capability of a prior art device require fair consideration, simplicity of the prior art is rarely a characteristic that weighs against obviousness of a more complicated device with added function." *In re Dance*, 160 F.3d 1339, 1344, 48 USPQ2d 1635, 1638 (Fed. Cir. 1998) (Court held that claimed catheter for removing obstruction in blood vessels would have been obvious in view of a first reference which taught all of the claimed elements except for a "means for recovering fluid and debris" in combination with a second reference describing a catheter including that means. The court agreed that the first reference, which stressed simplicity of structure and taught emulsification of the debris, did not teach away from the addition of a channel for the recovery of the debris.).

THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) (Claims were directed to an oil seal comprising a bore engaging portion with outwardly biased resilient spring fingers inserted in a resilient sealing member. The primary reference relied upon in a rejection based on a combination of references disclosed an oil seal wherein the bore engaging portion was reinforced by a cylindrical sheet metal casing. Patentee taught the device required rigidity for operation, whereas the claimed invention required resiliency. The court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." 270 F.2d at 813, 123 USPQ at 352.)

2143.02 Reasonable Expectation of Success Is Required

OBVIOUSNESS REQUIRES ONLY A REASONABLE EXPECTATION OF SUCCESS

The prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (Claims directed to a method of treating depression with amitriptyline (or nontoxic salts thereof) were rejected as *prima facie* obvious over prior art disclosures that amitriptyline is a compound known to possess psychotropic properties and that imipramine is a structurally similar psychotropic compound known to possess antidepressive properties, in view of prior art suggesting the aforementioned compounds would be expected to have similar activity because the structural difference between the compounds involves a known bioisosteric replacement and because a research paper comparing the pharmacological properties of these two compounds suggested clinical testing of amitriptyline as an antidepressant. The court

sustained the rejection, finding that the teachings of the prior art provide a sufficient basis for a reasonable expectation of success.); *Ex parte Blanc*, 13 USPQ2d 1383 (Bd. Pat. App. & Inter. 1989) (Claims were directed to a process of sterilizing a polyolefinic composition with high-energy radiation in the presence of a phenolic polyester antioxidant to inhibit discoloration or degradation of the polyolefin. Appellant argued that it is unpredictable whether a particular antioxidant will solve the problem of discoloration or degradation. However, the Board found that because the prior art taught that appellant's preferred antioxidant is very efficient and provides better results compared with other prior art antioxidants, there would have been a reasonable expectation of success.).

AT LEAST SOME DEGREE OF PREDICTABILITY IS REQUIRED; APPLICANTS MAY PRESENT EVIDENCE SHOWING THERE WAS NO REASONABLE EXPECTATION OF SUCCESS

Obviousness does not require absolute predictability, however, at least some degree of predictability is required. Evidence showing there was no reasonable expectation of success may support a conclusion of nonobviousness. *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976) (Claims directed to a method for the commercial scale production of polyesters in the presence of a solvent at superatmospheric pressure were rejected as obvious over a reference which taught the claimed method at atmospheric pressure in view of a reference which taught the claimed process except for the presence of a solvent. The court reversed, finding there was no reasonable expectation that a process combining the prior art steps could be successfully scaled up in view of unchallenged evidence showing that the prior art processes individually could not be commercially scaled up successfully.). See also *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 1207-08, 18 USPQ2d 1016, 1022-23 (Fed. Cir.), *cert. denied*, 502 U.S. 856 (1991) (In the context of a biotechnology case, testimony supported the conclusion that the references did not show that there was a reasonable expectation of success.); *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988) (The court held the claimed method would have been obvious

over the prior art relied upon because one reference contained a detailed enabling methodology, a suggestion to modify the prior art to produce the claimed invention, and evidence suggesting the modification would be successful.).

PREDICTABILITY IS DETERMINED AT THE TIME THE INVENTION WAS MADE

Whether an art is predictable or whether the proposed modification or combination of the prior art has a reasonable expectation of success is determined at the time the invention was made. *Ex parte Erlich*, 3 USPQ2d 1011 (Bd. Pat. App. & Inter. 1986) (Although an earlier case reversed a rejection because of unpredictability in the field of monoclonal antibodies, the court found "in this case at the time this invention was made, one of ordinary skill in the art would have been motivated to produce monoclonal antibodies specific for human fibroblast interferon using the method of [the prior art] with a reasonable expectation of success." 3 USPQ2d at 1016 (emphasis in original)).

2143.03 All Claim Limitations Must Be Taught or Suggested

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

INDEFINITE LIMITATIONS MUST BE CONSIDERED

A claim limitation which is considered indefinite cannot be disregarded. If a claim is subject to more than one interpretation, at least one of which would render the claim unpatentable over the prior art, the examiner should reject the claim as indefinite under 35 U.S.C. 112, second paragraph (see MPEP § 706.03(d)) and should reject the claim over the prior art based on the interpretation of the claim that ren-

In re Gordon et al. (CA FC) 221 USPQ 1125 (5/10/1984)

In re Gordon et al.

U.S. Court of Appeals Federal Circuit

221 USPQ 1125

Decided May 10, 1984

No. 83-1281

Headnotes

PATENTS

1. Patentability/Validity -- Obviousness -- References and claims as whole -- (§ 115.0904)

Question is not whether patentable distinction is created by viewing prior art apparatus from one direction and claimed apparatus from another, but whether it would have been obvious from fair reading of prior art reference as whole to turn prior art apparatus upside down: mere fact that prior art could be modified by turning apparatus upside down does not make modification obvious unless prior art suggested desirability of modification.

Particular patents -- Blood Filters

Gordon and Sutherland, Blood Filter Assembly, Rejection of claims 1-3 and 5-7 reversed.

Case History and Disposition:

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Application for patent of Lucas S. Gordon and Karl M. Sutherland, Serial No. 124,312, filed Feb. 25, 1980. From decision rejecting claims 1-3 and 5-7, applicants appeal. Reversed.

Attorneys:

James W. Geriak, Los Angeles, Calif. (Bradford J. Duft, Los Angeles, Calif., on the brief) for appellants.

John F. Pitrelli (Joseph F. Nakamura and John W. Dewhurst, on the brief) for Patent and Trademark Office.

Judge:

Before Bennett and Miller, Circuit Judges and Skelton, Senior Circuit Judge.

Opinion Text

Opinion By:

Miller, Circuit Judge.

This appeal is from the decision of the United States Patent and Trademark Office ("PTO") Board of Appeals ("board") affirming the examiner's rejection of appellants' claims 1-3 and 5-7 as unpatentable under 35 U.S.C. §103. We reverse.

The Invention

Appellants claim a "blood filter assembly" used during surgery and other medical procedures involving the handling of blood to remove clots, bone debris, tissue, or other foreign materials from blood before it is returned to a patient's body. Unlike blood filter assemblies widely used in the prior art, the device of the present invention permits both entry of the blood into, and ultimate discharge of the blood out of, the *bottom* end of the filter assembly, as shown below. 2

Tabular, graphic, or textual material set at this point is not available. Please consult hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

The blood filter assembly comprises a shell 1 provided with blood inlet 3 and blood outlet 4. Between the blood inlet and the blood outlet is filter medium 6 positioned within the filter medium core 7.

The location of blood inlet 3 is such that the incoming blood is directed along a spirally upward path by the inner wall of the shell. Further, the location of the blood inlet at the bottom end of the filter assembly facilitates the removal of gas bubbles by allowing them to rise upwardly out of the blood. The gas bubbles so removed are released from the blood filter assembly by means of a gas vent 5 located in the region of the top end of the assembly.

Independent claim 1, from which the other appealed claims depend, is illustrative:

Blood filter assembly comprising:

- a. a shell having a first top end and a second bottom end,
- b. a blood inlet located in the region of said bottom end and opening into said bottom end,
- c. a blood outlet located in the region of said bottom end,
- d. a gas vent located in the region of said top end, and
- e. a blood filter medium located between said blood inlet and said blood outlet,

said blood inlet being located and configured in a manner capable of directing incoming blood in a generally spiral path within said shell.

Claims 2, 3, and 5-7 further define the shape of the shell, the shape of the filter medium, and the nature of the material used as the filter medium.

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Prior Art

The sole reference relied upon by the board is United States Patent No. 1,175,948, issued March 21, 1916, to French. French discloses a liquid strainer for removing dirt and water from gasoline and other light oils. As shown below, the inlet 4 and outlet 5 of the French device are both at the *top* end of the device.

Tabular, graphic, or textual material set at this point is not available. Please consult hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

A continuous helical tooth or thread 8 is formed integral with the inner wall of shell 1 and imparts to the incoming liquid a whirling motion, which gives the liquid a scouring action to help clean the surface of a metal screen filter 21 and guides unwanted dirt and water downwardly into a pocket 9 in the bottom of the shell. A pair of shelves 10 and 11, projecting inwardly and downwardly from the inner wall of the shell, further assists the entrance of dirt and water into the pocket 9 and prevents their being drawn back into the main chamber 12. The reference expressly states, "gravity assists in the separation of heavier oils or water." A pet-cock 13, projecting vertically downward from the bottom of the pocket is used to remove the collected dirt and water periodically. The top of the liquid strainer is completely closed by gland 3 except for the inlet and outlet openings.

Board Opinion

The board held that the appealed claims were drawn to an apparatus which "would have at least been rendered *prima facie* obvious to one of ordinary skill in the art by the apparatus disclosed in French." The board's reasoning was that it would have been obvious to turn the French device upside down to have both the inlet and outlet at the bottom, rather than at the top; and to employ French's "pet-cock" as the claimed "gas vent." In the board's opinion, no patentable distinction was created by viewing French's apparatus from one direction and the claimed apparatus from another.

ANALYSIS

[1] We are persuaded that the board erred in its conclusion of *prima facie* obviousness. The question is not whether a patentable distinction is created by viewing a prior art apparatus from one direction and a claimed apparatus from another, but, rather, whether it would have been obvious from a fair reading of the prior art reference as a whole to turn the prior art apparatus upside down. French teaches a liquid strainer which relies, at least in part, upon the assistance of gravity to separate undesired dirt and water from gasoline and other light oils. Therefore, it is not seen that French would have provided any motivation to one of ordinary skill in the art to employ the French apparatus in an upside down orientation. The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. See *Carl Schenck, A.G. v. Nortron Corp.*, 713 F.2d 782, 787, 218 USPQ 698, 702 (Fed. Cir. 1983), and *In re Sernaker*, 702 F.2d 989, 995-96, 217 USPQ 1, 6-7 (Fed. Cir. 1983), both citing *In re Imperato*, 486 F.2d 585, 587, 179 USPQ 730, 732 (CCPA 1973).

Indeed, if the French apparatus were turned upside down, it would be rendered inoperable for its intended purpose. The gasoline to be filtered would be trapped in pocket 9, and the water French seeks to separate would flow freely out of the outlet 5. Further, unwanted dirt would build up in the space between the wall of shell 1 and screen 21, so that, in time, screen 21 would become clogged unless a drain valve, such as pet-cock 13, were re-introduced at the new "bottom" of the apparatus. See *In re Schulpen*, 390 F.2d 1009, 1013, 157 USPQ 52, 55 (CCPA 1968). In effect, French teaches away from the board's proposed modification.

Because the PTO has failed to establish a *prima facie* case of obviousness, the rejection of claims 1-3 and 5-7 as unpatentable under 35 U.S.C. §103 must be *reversed*. 3

Reversed

Footnotes

Footnote 1. In application Serial No. 124,312, filed February 25, 1980, for a "Blood Filter."

Footnote 2. Extraneous numbers have been removed from this and the subsequent drawing for clarification.

Footnote 3. Because our holding that the PTO has failed to establish a *prima facie* case is dispositive, it is unnecessary to reach other arguments raised by appellants.

- End of Case -

King argues that the wide disparity in punishments for crimes involving crack cocaine and those involving powder cocaine violates the Constitution's guarantee of equal protection in that it has a discriminatory impact on black persons. King argues that crack cocaine is predominantly used by blacks, and that powder cocaine is predominantly used by whites.¹ Thus, he argues that blacks are punished much more severely for using cocaine than are whites.

The parties agree that the appropriate level of scrutiny is the rational basis test, since King has not alleged a discriminatory intent on the part of Congress. Thus, we apply the rational basis test.²

[1, 2] To pass the rational basis test, the legislation must have a legitimate purpose, and it must have been reasonable for lawmakers to believe that the use of the challenged classification would promote that purpose. *Western & Southern Life Insurance Co. v. State Board of Equalization*, 451 U.S. 648, 668, 101 S.Ct. 2070, 2083, 68 L.Ed.2d 514 (1981). We readily conclude that the sentencing scheme in question withstands scrutiny under the rational basis standard. The fact that crack cocaine is more addictive, more dangerous, and can be sold in smaller quantities than powder cocaine is sufficient reason for Congress to provide harsher penalties for its possession. *United States v. Watson*, 953 F.2d 895, 898 (5th Cir.), cert. denied, ___ U.S. ___, 112 S.Ct. 1989, 118 L.Ed.2d 586

1. King has presented no evidence to support his claim, although he points to statistics utilized by the Minnesota Supreme Court in *Minnesota v. Russell*, 477 N.W.2d 886 (Minn.1991). In that case, the trial court found that in 1988, 96.6% of all persons charged with possession of cocaine base in Minnesota were black, and that 79.6% of persons charged with possession of powder cocaine were white. For the purposes of argument, we will assume that the statistical data gathered in Minnesota is similar to that which would be found in this circuit.

2. The other circuits that have addressed this issue have applied the rational basis test. See *United States v. Watson*, 953 F.2d 895, 898 (5th Cir.), cert. denied, ___ U.S. ___, 112 S.Ct. 1989, 118 L.Ed.2d 586 (1992); *United States v. House*, 939 F.2d 659, 664 (8th Cir.1991); *United States v. Thomas*, 900 F.2d 37, 39 (4th Cir.1990); *United States v. Cyrus*, 890 F.2d 1245, 1248 (D.C.Cir.

(1992). See also *United States v. House*, 939 F.2d 659, 664 (8th Cir.1991); *United States v. Thomas*, 900 F.2d 37, 39 (4th Cir.1990); *United States v. Cyrus*, 890 F.2d 1245, 1248 (D.C.Cir.1989).

AFFIRMED.



In re John R. FRITCH.

No. 91-1318.

United States Court of Appeals,
Federal Circuit.

Aug. 11, 1992.

United State Patent and Trademark Office, Board of Patent Appeals and Interferences agreed with examiner's conclusion that claimed invention for landscape edging apparatus and method was invalid based on obviousness. Applicant appealed. The Court of Appeals, Edward S. Smith, Senior Circuit Judge, held that fact that prior art could be modified in manner suggested by examiner did not make modification obvious.

1989). See also *United States v. Solomon*, 848 F.2d 156, 157 (11th Cir.1988) (no heightened scrutiny of mandatory minimum sentence for possession of cocaine base with intent to distribute because § 841(b)(1) does not discriminate on the basis of a suspect classification or a fundamental right).

3. King also argues that the state and federal law enforcement agencies engaged in "de facto" sentencing, violating his right to due process. King contends that state criminal charges against him were dismissed in favor of prosecution in federal court, where the sentences for crimes involving crack cocaine are much harsher than in state court. King was charged with violations of both federal and state law. Because he could have been prosecuted in both state and federal court, we cannot conclude that his rights were violated because he was prosecuted only in federal rather than state court.

IN RE FRITCH

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unless prior art suggested desirability of modification.

Reversed.

1. Patents ¶32

In proceedings before Patent and Trademark Office, examiner bears burden of establishing prima facie case of obviousness based on upon prior art; patent applicant may then attack examiner's prima facie determination as improperly made out, or applicant may present objective evidence tending to support conclusion of nonobviousness. 35 U.S.C.A. § 103.

2. Patents ¶16.4, 16.7

Claimed invention for landscape edging apparatus and method was not invalid based on obviousness; mere fact that prior art could be modified in manner suggested by examiner did not make modification obvious unless prior art suggested desirability of modification. 35 U.S.C.A. § 103.

3. Patents ¶16(1)

It is impermissible to use claimed invention as instruction manual or "template" to piece together teachings of prior art so that claimed invention is rendered obvious and unpatentable. 35 U.S.C.A. § 103.

Charles L. Gholz, Oblon, Spivak, McClelland, Maier & Neustadt, Arlington, Va., argued, for appellant. John R. Fritch, Corpus Christi, Tex., was on the brief.

Jameson Lee, Associate Sol., Arlington, Va., argued, for appellee. With him on the brief was Fred E. McKelvey, Sol. Of counsel was Richard E. Schafer.

Before PLAGER, Circuit Judge, SMITH, Senior Circuit Judge, and RADER, Circuit Judge.

EDWARD S. SMITH, Senior Circuit Judge.

John R. Fritch (Fritch) appeals the 27 February 1991 decision of the Patent and

1. Serial No. 06/838,721

Issue

The issue is whether the Board erred in affirming the Examiner's determination that the prior art references of Wilson and Hendrix rendered the subject matter of Fritch's independent claims 1, 13, 24, and 29 obvious to one of ordinary skill in the art.

Background

In his final rejection, the Examiner rejected claims 1-24 and 27-30 of Fritch's application as unpatentable for obviousness under 35 U.S.C. § 103. Fritch appealed the final rejection to the Board. The Board affirmed the rejection as to claims 1-24, 29 and 30, entered a new ground of rejection for claim 27, and reversed as to claim 28. The Board agreed with the Examiner that the teachings of the Wilson and Hendrix patents rendered the subject matter of independent claims 1, 13, 24, and 29 obvious to one of ordinary skill in the art. Fritch does not appeal the Board's disposition as to claims 27 and 28, and at oral argument withdrew the appeal as to claim 8. The claims remaining in this appeal are 1-7, 9-24, 29 and 30.

The Fritch Invention

The invention claimed by Fritch involves a landscape edging device which includes a planar base portion and an upwardly extending retainer portion. The base portion is elongate, thin, flexible and has a planar bottom surface conformable to a varying slope ground surface. One longitudinal

edge of the base portion serves as a mowing strip and the other serves as a retaining flange for landscape fill. The upwardly extending retainer portion is integrally connected (e.g., fused) to the base portion and defines a longitudinally extending enclosed space. The Fritch invention is intended to be used as a retainer for landscape fill in order to separate unmowable landscape fill from the mowable lawn. It may also be used to secure a landscaping sheet to the ground, or to function as guards at the base of a fence. Independent claims 1 and 13 on appeal are representative of the subject matter claimed:

1. A landscape edging strip formed in its entirety of a thin gauge, flexible material and conformable to a ground surface of varying slope, comprising a continuous elongate, thin gauge, flexible base portion having a planar bottom surface conformable to said varying slope ground surface; a thin gauge, elongate retainer portion integral with said base portion and extending upwardly therefrom and transversely thereafter to overlie a portion of said base portion; all of said retainer portion defining a longitudinally extending enclosed space; said retainer portion being integrally connected to said base portion at longitudinal edges of said base portion, thereby defining a longitudinally extending retaining flange on one side of said retainer portion and a mowing strip on the other side of said retainer portion.

The critical language in Fritch's independent claims is that the device is to be, in its entirety, both flexible and "conformable to a ground surface of varying slope". These limitations, although located in the claims' preambles, "are necessary to give meaning to the claim[s] and properly define the invention".² Figure 1 from Fritch's drawings is reproduced below:

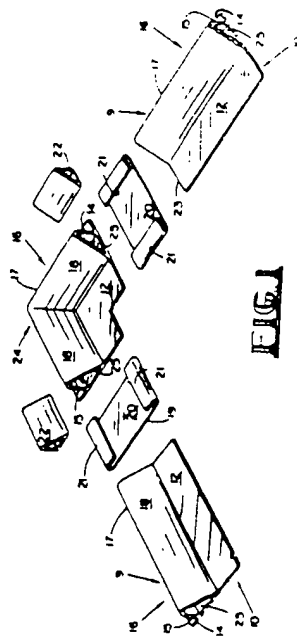


FIG. 1

2. *Perkin Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 896, 221 USPQ 669, 675 (Fed.Cir. 1984).

Cite as 972 F.2d 1260 (Fed. Cir. 1992)

The Prior Art

a. The Wilson Patent

The Wilson patent relied upon by the Examiner and the Board is entitled "Grass Edging and Watering Device".³ The embodiment of the Wilson device includes a substantially flat mowing strip extending horizontally from a longitudinally extend-

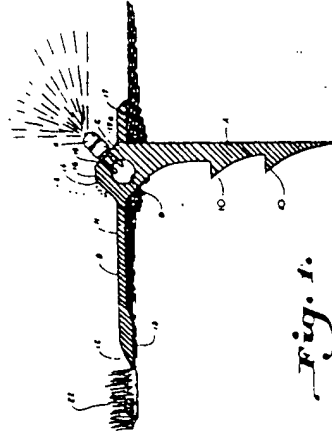


Fig. 1.

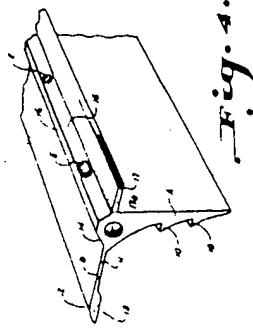


Fig. 4.

b. The Hendrix Patent

The Hendrix patent is entitled "Loose Material Retainer Strip".⁴ The Solicitor chose not to discuss the Hendrix reference in his brief, stating that the Board had deemed Hendrix unnecessary to its decision. The Solicitor overstates the Board's position. The Board based its decision upon "a collective evaluation of the Wilson and Hendrix patents". We include Hendrix in our discussion because it did play a role in the rejection of Fritch's independent claims.

The Hendrix device is composed of elongated, flexible strips having substantially C-shaped cross-section. The bottom lip of the device is to be wider than the top lip in order to facilitate fastening the device to the ground. The device will fit most gently contours, and the top lip will yield laterally to build-up of gravel until the gravel can be redistributed. The concave portion of the strip is installed such that it faces the material to be retained in place. Hendrix contemplates that the retainer will be used

3. U.S. Patent No. 3,485,449.

4. U.S. Patent No. 4,349,596.

in retaining gravel in driveways, lining flower beds, or on the shoulders of asphalt ditches drawings is reproduced below:

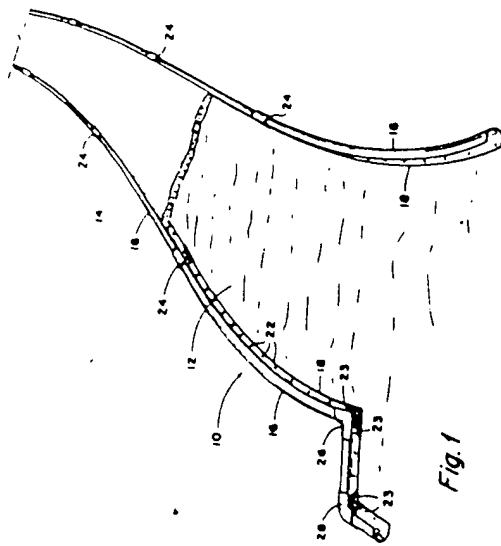


Fig. 1

Standard of Review

"[O]bviousness is a question of law to be determined from the facts."⁵ The obviousness determination "is based upon underlying factual inquiries concerning the claimed invention and the prior art" which are reviewed for clear error.⁶ However, it is the ultimate conclusion of obviousness which the Federal Circuit reviews as a matter of law.⁷

Teachings of Wilson

Fritch takes exception to the Examiner's findings of fact related to the teachings of the Wilson patent. The Examiner's rejection and the Board's opinion rely heavily on the use of Wilson in view of other references to declare the Fritch invention obvious. The Board states that it agrees with the Examiner's finding of fact regarding the

teachings of Wilson. In the Examiner's answer, which the Board quotes, the Wilson device is described as follows:

Wilson discloses a landscaping edging strip comprising a relatively thin gauge, elongated flexible base portion including a mower strip B having a planar bottom surface conformable to a varying slope surface.

The Board states that the Wilson reference presents "substantial evidence that Wilson is both thin and flexible." The Board regards the Wilson device as teaching that it is flexible and conformable in its entirety. This finding demonstrates clear error.

It is well settled that a prior art reference is relevant for all that it teaches to those of ordinary skill in the art.⁸ The base portion of Wilson is not planar in its

IN RE FRITCH

Cite as 972 F.2d 1260 (Fed. Cir. 1992)

1265

entirety, as the Board's opinion suggests, but also includes a prominent anchoring leg to secure the device to the ground. The anchoring leg, which runs the length of the Wilson device, would inhibit longitudinal flexibility of the Wilson device. Indeed, Wilson expressly contemplates flexibility and conformability *only* in the mower strip. Wilson states that its mower strip may be lifted in order to pack dirt thereunder for the purpose of securing the device to the ground. Fritch, on the other hand, is claimed to be flexible in its entirety. The Board's holding that Wilson is flexible in its entirety is based upon a misapprehension of the scope of Wilson's teachings.

Second, Wilson's anchoring leg prohibits conformability to the ground surface in the manner claimed by Fritch. The Examiner's description of Wilson as having a "planar bottom surface conformable to a varying slope surface" is applicable *only* in reference to the mower strip. This description, however, ignores the anchor leg and the fact that it must be placed *into* the ground. Wilson expressly teaches that the anchoring leg may be pushed into soft soils, but in harder terrain a trench is needed in order to place the Wilson sprinkler system. In order to install the Wilson apparatus, the ground surface must be altered to conform to the device rather than, as the Solicitor contends, that Wilson is freely conformable to the ground. Fritch, on the other hand, does not require such extensive alteration of the ground surface in order to install the device.

Prima Facie Obviousness

[1] In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art.⁹ "[The Examiner] can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in

the art would lead that individual to combine the relevant teachings of the references."¹⁰ The patent applicant may then attack the Examiner's prima facie determination as improperly made out, or the applicant may present objective evidence tending to support a conclusion of nonobviousness.¹¹

[2] Fritch has attacked the Board's finding that the Examiner established that Fritch's claimed invention was prima facie obvious in view of the teachings of the prior art. The Board states that "a collective evaluation of the Wilson and the Hendrix patents would have rendered the subject matter of independent claims 1, 13, 24, and 29 obvious to one of ordinary skill." Fritch maintains that there is no teaching, suggestion, or incentive in the prior art to modify or to combine the teachings of the prior art in the manner suggested by the Examiner. We agree.

Wilson teaches a grass edging and watering device which includes an anchoring leg for securing the device to the ground. Wilson contemplates that a trench will need to be dug in order to allow the anchoring leg to be placed into the ground if the condition of the soil requires it. This anchoring leg prohibits flexibility and conformability over the length of Wilson. Any flexibility or conformability in Wilson, which the Board states extends to the entire device, is limited to the mower strip. It is only the mower strip that is mentioned as being flexible in order to aid installation. Hendrix has been cited for its teaching of a flexible retainer strip that is able to conform to the ground surface.

Wilson addresses the problems of arresting growth of grass between areas and watering plants without wetting sidewalks. Wilson lacks any suggestion or incentive to use its water conduit as a landscape retainer since this would arguably result in clogged sprinkler heads.¹² Wilson also

11. *In re Heldt*, 433 F.2d 808, 811, 167 USPO 676, 678 (CCPA 1970).

12. This court has previously found a proposed modification inappropriate for an obviousness inquiry when the modification rendered the prior art reference inoperable for its intended pur-

9. *In re Pissicki*, 745 F.2d 1408, 1471-72, 223 USPO 785, 787-88 (Fed. Cir. 1984).

10. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) (citing *In re Latta*, 747 F.2d 703, 705, 223 USPO 1257, 1258 (Fed. Cir. 1988)).

7. *In re De Blauwe*, 736 F.2d at 703, 222 USPO at 195.

8. *Backman Instruments Inc. v. LKH Produkter AB*, 892 F.2d 1547, 1551, 13 USPQ2d 1301, 1304 (Fed. Cir. 1990).

5. *In re De Blauwe*, 736 F.2d 699, 703, 222 USPO 191, 195 (Fed. Cir. 1984).

6. *In re Kulling*, 897 F.2d 1147, 1149, 14 USPQ2d 1056, 1057 (Fed. Cir. 1990).

teaches that its mower strip is flexible in order to allow dirt to be packed thereunder. There is no suggestion in Wilson to extend that flexibility to the entire device. Wilson also lacks any teaching or suggestion that one should remove the anchoring leg. Hendrix does not, simply by virtue of its flexible nature, suggest these extensive changes which the Board states are obvious. Neither Wilson nor Hendrix, alone or in combination, provide any incentive to combine the teachings of the prior art in the manner maintained by the Board.

"Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined *only* if there is some suggestion or incentive to do so." Although couched in terms of combining teachings found in the prior art, the same inquiry must be carried out in the context of a purported obvious "modification" of the prior art. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.¹³ Wilson and Hendrix fail to suggest any motivation for, or desirability of, the changes espoused by the Examiner and endorsed by the Board.

[3] Here, the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious.¹⁴ This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the

pose. *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed.Cir.1984).

13. *ACS Hosp. Systems, Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 979, 933 (Fed. Cir.1984).

14. *In re Gordon*, 733 F.2d at 902, 221 USPQ at 1127.

15. *In re Gorman*, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed.Cir.1991). See also *Interconnect*

prior art to deprecate the claimed invention." 14

Conclusion

The decision of the Board affirming the Examiner's rejection of independent claims 1, 13, 24, and 29 of Fritch's application as unpatentable over the prior art under 35 U.S.C. § 103 is reversed. Since dependent claims are nonobvious if the independent claims from which they depend are nonobvious, the Board's affirmation of the rejection of dependent claims 2-7, 9-12, 14-23, and 30 is also reversed.¹⁵

REVERSED.



The UNITED STATES,
Plaintiff-Appellee,

v.

COMMODITIES EXPORT CO.,
Defendant-Appellant,

and

Old Republic Insurance Co.,
Defendant-Appellant.

Nos. 91-1470, 91-1482.

United States Court of Appeals,
Federal Circuit.

Aug. 11, 1992.

Government brought action to recover unpaid liquidated damages under customs warehouse bond. The United States Court *Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed.Cir.1985).

16. *In re Fine*, 837 F.2d at 1075, 5 USPQ2d at 1600.

17. *In re Fine*, 837 F.2d at 1076, 5 USPQ2d at 1600 (citing *Harniss Int'l, Inc. v. Simplimatic Fing & Co.*, 819 F.2d 1100, 1108, 2 USPQ2d 1826, 1831 (Fed.Cir.1987)). See also *In re Semaker*, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed.Cir.1983) (when argued together, dependent claims stand or fall with the independent claims from which they depend).

5. Limitation of Actions ¶43

Under federal law governing statutes of limitations, cause of action accrues when all events necessary to state claim occur.

6. Limitation of Actions ¶47(3)

Action brought by government to recover unpaid liquidated damages under customs warehouse bond was time barred under six-year limitations period for actions founded on contract; fact that Customs unilaterally adopted regulations which delayed filing of action until Customs had given notice and waited 60 days for response did not change accrual of limitations period. 28 U.S.C.A. §§ 2415, 2416, 2416(c).

Mark S. Sochaczewsky, Atty., Commercial Litigation Branch, Dept. of Justice, New York City, argued, for plaintiff-appellee. With him on the brief, were Stuart M. Gerson, Asst. Atty. Gen., David M. Cohen, Director and Joseph I. Liebman, Atty. in Charge, Intern. Trade Field Office. Also on the brief was Michele L. Kenney, U.S. Customs Service, of counsel.

Roger E. Craig, Naples, Fla., argued, for defendant-appellant. Commodities Export Co. With him on the brief, was Walter H. Lubinski, Lubinski & Lubinski, Detroit, Mich. Wayne James Jarvis, Wayne Jarvis, Ltd., Chicago, Ill., argued, for defendant-appellant. Old Republic Ins. Co. With him on the brief was Michael G. Hodes, Hodes & Filon, Chicago, Ill., of counsel.

Before ARCHER, Circuit Judge, BENNETT, Senior Circuit Judge, and RADER, Circuit Judge.

RADER, Circuit Judge.

The United States sued Commodities Export Company and Old Republic Insurance Company in the United States Court of International Trade to recover unpaid liquidated damages under a customs warehouse bond. The trial court entered judgment in favor of the United States. *United States v. Commodities Export Co. & Old Republic Ins. Co.*, CIT No. 89-03-00144, May 14, 1991. Because the United States did not file its action within the six year statute of

1. Customs Duties ¶84(1)

In order to fall within exclusive jurisdiction of Court of International Trade, action to recover on bond must be begun by United States, must arise out of import transaction, and must relate to importation of merchandise required by laws of United States or by Secretary of Treasury.

2. Customs Duties ¶84(1)

For purposes of determining whether action to recover on bond falls within exclusive jurisdiction of Court of International Trade, foreign goods in bonded warehouse are "imported" on entry into United States. 28 U.S.C.A. §§ 1582, 1582(2).

3. Customs Duties ¶84(1)

For purposes of determining whether action to recover on bond falls within exclusive jurisdiction of Court of International Trade, bond related to importation of merchandise where it dealt with documentation and manipulation of imported merchandise in bonded warehouse and insured payment of duties on imported merchandise in event that duties became payable. 28 U.S.C.A. §§ 1582(2), 2415(a); Tariff Act of 1930, § 621, as amended, 19 U.S.C.A. § 1621.

4. Customs Duties ¶84(3)

Action to recover liquidated damages under terms of bond agreement was "founded upon a contract" and thus was subject to six-year limitation period and not five-year limitations period applicable to cases in which government sought pecuniary penalties accruing under customs law. 28 U.S.C.A. §§ 1582(2), 2415(a); Tariff Act of 1930, § 621, as amended, 19 U.S.C.A. § 1621.

which is used as a basis for denial of credit. Furthermore, the definition of a consumer report [set forth in § 1681a(d)] is not limited to derogatory or adverse information, [but encompasses] a communication of any information by a consumer reporting agency relating to a consumer's credit worthiness, credit standing, credit capacity, etc.

FTC Unofficial Staff Interpretation (July 5, 1973), reprinted in R. Chantz, *Fair Credit Reporting Manual* at F-100 (1977 ed.) (emphasis in the original). Thus a creditor could, upon obtaining a consumer report, discover that a prospective borrower had established an excellent credit record over a period of years, yet determine that qualifications revealed in the report did not meet its own standards of creditworthiness. Under these circumstances, disclosure would be mandated.

[6] Such is the case herein. Fischl's application for credit was denied in part because of information in a report prepared by a credit reporting service. This information was incomplete and misleading. The

5. We note in passing, references reflecting congressional intent with respect to timing:

The House amendment, which was agreed to by the conferees, deleted the requirement in § 615(a) [1681m(a)] that the consumer be required to submit a written request after denial of credit, insurance, or employment to obtain the name and address of the consumer reporting agency making the report. The conference substitute now requires the use of the report to convey this information to the consumer immediately upon denial of credit, insurance or employment.

Conf. Rep. No. 91-1587, 91st Cong., 2d Sess., reprinted in 1970 U.S. Code Cong. & Admin. News pp. 4394, 4416 (emphasis added). In the course of his presentation of the conference bill to the House, Representative Sullivan commented:

The House conferees succeeded in assuring immediate notification to any individual, who is rejected for credit, insurance or employment because of information in a credit report, of the name and address of the agency which made the report on him. Thus, his right to access to his file is made more meaningful—he will automatically be told where to look for information which may be causing him needless harm. The Senate bill would have required the consumer who had been rejected for credit, insurance, or employment because of information in a credit file to

obtain details of his credit history set forth in the report, when evaluated under GMAC's judgmental criteria, did not furnish a sufficient guarantee of financial responsibility to support an extension of credit in the amount sought. GMAC concluded that the record of Fischl's current obligations did not justify a prediction that he could successfully undertake the monthly payments contemplated.

Despite its reliance on data contained in the credit report, when reporting to Fischl via the form letter of October 3, 1980, GMAC did not disclose this information, advising instead that disclosure was inadvisable. This action did not comport with § 1681m(a). Similarly, GMAC's subsequent oral response to Fischl's inquiry, noting the name and address of the credit bureau, did not suffice under the statute. We need not and do not decide whether the notice required by § 1681m(a) must be written, nor do we decide the mandated timing for the notice. Those questions remain for another day.⁵

request, in writing, the name and address of the credit reporting bureau, in order to check further into the information which may have caused his rejection. It was our feeling that this was a needless technicality which would have resulted, from a practical standpoint, in some, or many, individuals, for trivial or other reasons, failing to exercise their rights to find out where to go in order to have a damaging credit report reevaluated and, if wrong, corrected. Some of the consumer witnesses at our hearings made a particular point of this.

H.R. 15073, 91st Cong., 2d Sess., 116 Cong. Rec. 36571 (1970) (emphasis added).

One court, after examining the statutory language and pertinent legislative history, opined that disclosure under § 1681m(a) must be effected contemporaneously with the creditor's notification of its decision to decline credit. *Carroll v. Exxon Co., U.S.A.*, This position finds support in advisory guidelines compiled by the FTC. FTC Pamphlet, Compliance with the Fair Credit Reporting Act at 3 (revised 1979) ("[t]he consumer is given the right to be told the name and address of the consumer reporting agency when he is rejected for credit, insurance or employment at the time of such denial.") (emphasis added). Accord, *R. Chantz, Equal Credit Opportunity Manual* at 5-19 (1983 Supp.); Weinstein, *Federal Fair Credit Reporting Act—Compliance By Lenders*

[7, 8] Because Fischl succeeded in locating

ing the credit bureau and securing a copy of the report in short order, the district court determined that he could not have suffered any actual damages. That does not end the inquiry before us. Even where no pecuniary or out-of-pocket loss has been shown, the FCRA permits recovery for humiliation and mental distress. *Thompson v. Sun Antonio Retail Merchants Ass'n*, 682 F.2d 509 (5th Cir. 1982); *Millstone v. O'Hanlon Resorts, Inc.*, 528 F.2d 829 (8th Cir. 1976); see *Evers v. Equifax*, 650 F.2d 793 (5th Cir. 1981), as well as for injury to one's reputation and creditworthiness. *Bryant v. TRW, Inc.*, 689 F.2d 72 (6th Cir. 1982) (citing Representative Sullivan's remarks, set forth at 116 Cong. Rec. 36570 (1970)). Negligent noncompliance with the FCRA entitles the consumer to an award of actual damages and reasonable attorney's fees, 15 U.S.C. § 1681 or willful noncompliance in addition gives rise to liability for punitive damages. Section 1681n(2). See *Bryant v. TRW, Inc.*, *Equifax*, 619 F.2d 700 (8th Cir.), cert. denied, 449 U.S. 835, 101 S.Ct. 108, 66 L.Ed.2d 41 (1980). Malice or evil motive need not be established for a punitive damages award, but the violation must have been willful. *Thornton*. On remand, the district court should assess plaintiff's right under §§ 1681a and 1681n to actual damages, costs and reasonable attorney's fees, and punitive damages. In so remanding, we intimate no conclusion as to whether damages should be awarded. That is for the district court to determine, either on the basis of the record as presently constituted or as supplemented by additional submissions, as the district court deems appropriate.

REVERSED and REMANDED for further proceedings consistent herewith.



and Other Users of Consumer Credit Information, 89 Banking L.J. 410, 423 (1971)

KORI CORPORATION and Huey J. Rivet, et al., Plaintiffs-Appellees,

vs.
WILCO MARSH HUGHES AND DRAGLINES, INC., et al., Defendants-Appellants.

No. 82-3004.

United States Court of Appeals,
Fifth Circuit.

June 27, 1983.

Rehearing Denied Aug. 17, 1983.

Plaintiffs brought action alleging infringement by defendants of patent No. 3,842,786, entitled "amphibious marsh craft," and defendants counterclaimed alleging that patent was invalid. The United States District Court for the Eastern District of Louisiana, Robert F. Collins, J., 561 F.Supp. 512, entered judgment for plaintiffs, and defendants appealed. The Court of Appeals, Politz, Circuit Judge, held that: (1) patent was valid, and (2) patent was infringed.

Affirmed.

1. Patents \ominus 112.1

Properly issued patent was entitled to presumption of validity and alleged infringement bore burden of showing invalidity. 35 U.S.C.A. § 282.

2. Patents \ominus 37

To be patentable, invention must be novel. 35 U.S.C.A. § 102.

3. Patents \ominus 72(1)

Defense of anticipation, derived principally from statute requiring that, to be patentable, invention must be novel, is strictly technical, requiring showing of actual identity in prior art. 35 U.S.C.A. § 102(a).

4. Patents \ominus 72(1)

Unless all of same elements or their equivalents are found in substantially same situation where they do substantially same

work in same way, there is no patent under patent. 35 U.S.C.A. § 102(a)

5. Patents \Rightarrow 310(7a)

Allegation by alleged patent infringer of prior uses which were in fact found in somewhat similar but distinct situations did not provide sufficient basis upon which to negate novelty. 35 U.S.C.A. §§ 102, 102(a)

6. Patents \Rightarrow 168(1)

Claim that prior art placed before Patent Office in course of its review and approval was inadequate was not supported by file wrapper where, although application did not list every prior art device which contained some element found on marsh buggy for which patent was sought, application presented examiner with pertinent prior art, including relevant references to each element distinguishing buggy from earlier patented marsh craft. 35 U.S.C.A. § 102.

7. Patents \Rightarrow 98

Justification of prior art requirement includes notion of fair disclosure by applicants so that Patent Office may adequately consider previous inventions. 35 U.S.C.A. § 102.

8. Patents \Rightarrow 98

In context of prior art placed before Patent Office in course of its review, fair disclosure is not endless or absolute disclosure; it suffices if Patent Office is not misled and has meaningful opportunity to compare pertinent prior art. 35 U.S.C.A. § 102.

9. Patents \Rightarrow 26(1/4, 2)

Linchpin of evaluation of patent's obviousness is not whether individual components were obvious at time of invention, but whether aggregation produced new or different result or achieved synergistic effect. 35 U.S.C.A. § 103.

10. Patents \Rightarrow 26(1)

In judging obviousness of combination patent, Court of Appeals would look to aggregate effect of individual components. 35 U.S.C.A. § 103

11. Patents \Rightarrow 26(1/4)

Combination patents, to be valid, must produce unexpected, unusual or synergistic result; inquiry is nothing more than whether whole is greater than sum of its parts. 35 U.S.C.A. § 103

12. Patents \Rightarrow 26(1/4)

Notwithstanding that many elements of patented swamp buggy could be separately found in prior art, synergistic effect of combination, which resulted in first craft capable of traveling safely and carrying heavy loads for extended periods through stump-filled swamps, belied charge of obviousness. 35 U.S.C.A. § 103.

13. Patents \Rightarrow 16, 22

Where limitations of previously patented swamp vehicle, when tested outside its intended uses, were immediately apparent but no definitive improvement was offered for over 20 years, patent at issue for first craft capable of traveling safely and carrying heavy loads for extended periods through stump-filled swamps was innovatively different and not readily obvious to one in inventor's position and was therefore valid. 35 U.S.C.A. § 103.

14. Patents \Rightarrow 237

Doctrine of equivalents gives patentee broad protection from minor deviations.

15. Patents \Rightarrow 235(2)

Patent No. 3,842,785, for vehicle which could travel safely carrying heavy loads for extended periods through stump-filled swamps, was infringed by craft having substantial identity of means, operation and result and differences which were but cosmetic and trivial.

Greenberg & Dallam, Nathan Greenberg, Gretna, La., for defendants-appellants.

Keaty & Garvy, Thomas S. Keaty, New Orleans, La., for plaintiffs-appellees.

Appeal from the United States District Court for the Eastern District of Louisiana.

Before TUTTLE*, POLITZ and GARWOOD, Circuit Judges.

POLITZ, Circuit Judge.

The discovery of oil and gas deposits beneath the marshes and swamps of the Gulf South opened vast vistas, offered many opportunities and called for a host of new developments. A form of transportation capable of traversing the mitherland-marsh water character of the wide-open treeless marshes, as well as the obstruction-ridden, stump-studded swamps, was an immediate and pressing need. In 1974, Huy J. Rivet offered a solution with an "Amphibious Marsh Craft" for hauling loads and laying pipeline in the swamp. The instant dispute involves Rivet's marsh patent, infringed, according to the plaintiffs, by the defendants' manufacture of similar craft. After bifurcation, the district court, 561 F.Supp. 512, found the Rivet patent valid and infringed by defendants' vehicle. We affirm.

Facts

The Rivet patent, U.S. Patent No. 3,842,785, describes an endless-track amphibious vehicle, resembling a pontooned army tank, capable of traversing marshes and swamp-land, carrying loads up to 60 tons over tree stumps and other obstacles. Rivet's buggy finds primary application in oil and gas related transportation and construction, offering an efficient method for laying pipelines through the Louisiana swamps.

Before the advent of the Rivet craft, those venturing into the swamps relied on a marsh craft patented in 1947 by Frank Reynolds. The Reynolds amphibian was originally used in seismic survey work in the open marshes. Its design was not suitable for hauling heavy loads or for movement through swampy areas. In the 1950s this craft was adapted for limited pipeline work by attachment of a small crane to a set of Reynolds-type pontoons. Other modifications included the addition of a backhoe and the reduction of the vehicle's size, both in an effort to avoid damage caused by tree stumps encountered in the swamps.

* Circuit Judge of the Eleventh Circuit, sitting by designation.

(U.S. 708 F.2d 151 (1983))

Despite the adaptations, the Reynolds buggy could not make the transition from treeless marshes to tree swamps, and it could not carry heavy loads without frequent mishaps. Pipeline workers sought to navigate the swamps by "matting," a procedure using huge timber mats to support earthmovers which cleared away the tree stumps. The process was slow, cumbersome and expensive. The mats had to be moved to each new location and, not infrequently, the equipment would slip off the mats and sustain damage. The name of the game was damages and delay. Even with this costly workover of the swamps, the Reynolds craft would break down often, making back-up units necessary to prevent expensive immobilization of construction crews.

Huy Rivet was using this burdensome process while laying pipeline in Mississippi and Louisiana in 1971. Frustration at the inefficiency and construction delays provided the motivation for his invention of a structurally stronger, more watertight buggy. Rivet developed a buggy capable of traversing stump-dotted swampland, actually "walking" over stumps without matting or preclearing. The craft could do so for extended periods, carrying substantial loads. The design resisted the dual banes of previous marsh buggies—ponton puncturing and weld twisting.

The advantages enjoyed by the Rivet model derived principally from: (1) placement of plastic support blocks on the cleats to prevent pontoon puncturing, (2) spacing of I-beams on pontoon bottoms for support, and (3) creating discrete buoyant chambers by placing vertical bulkheads within the length of the pontoons.

Robert J. Wilson, Sr., father of defendants John M. Wilson, Sr., Dean R. Wilson, and Robert J. Wilson, Jr., worked for Rivet during 1974 as a contract welder. During this time, as found by the district court, Wilson received detailed instructions on the design of the Rivet pontoon. Upon completion of his welding contract with Rivet, Wilson began building Rivet-type pontoons

for Wilco, Marsh Buggies and Draglines, Inc., a corporation formed and owned by his three sons. Wilco bought a Rivet craft and Dean Wilson ordered copies of the Rivet patent. Wilco began the production and sale of a marsh buggy strikingly similar to the Rivet vehicle, especially the model manufactured by Kori Corporation, a Rivet licensee.

Rivet, Kori, and another licensee, Louis Wiedson, filed the instant suit against Wilco and the Wilson brothers, seeking injunctive relief and damages. In the pre-trial bifurcation, the issue of damages, together with claims and counterclaims of unfair competition, libel and trade secret appropriation, was severed. After trial to the jury, the district court found the patent valid, and infringed and enjoined further infringement.

Validity

Relying on the Reynolds patent, recent design improvements in the marsh craft industry, and patents from other fields, Wilco contends that the Rivet patent is invalid because: (1) it was anticipated in the prior art, and/or (2) its claims were obvious to one having ordinary skill in the relevant art.

[1] The Rivet patent, like all patents properly issued, is entitled to a presumption of validity. 35 U.S.C. § 282. Wilco bears the burden of showing the invalidity of a patent regular on its face. *E.g., Farmhand, Inc. v. Anel Engineering Industries, Inc.*, 693 F.2d 1140 (5th Cir.1982); *Parker v. Motorola, Inc.*, 524 F.2d 518, 521 (5th Cir.1975) (describing various measures of proof applied and concluding that more than a "preponderance of the evidence" is required). *cert. denied*, 425 U.S. 975, 96 S.Ct. 2175, 48 L.Ed.2d 789 (1976).

1. Wilco's appeal originally included an attorney's fees issue. We noted, and Wilco agreed, that the issue was raised prematurely. By supplemental briefing Wilco waived, at this time, the attorney's fees appeal, leaving that issue to be considered with the second phase of the bifurcated trial. We find that the issues Wilco ultimately urges to this court are properly before us.

1. *Anticipation and the Prior Art*
[2-4] To be patentable, an invention must be novel. 35 U.S.C. § 102. The degree of anticipation, derived principally from § 102(a), is strictly technical, requiring a showing of actual identity in the prior art. *Stoddard, Inc. v. Delwood Furniture Co., Inc.*, 578 F.2d 74 (5th Cir.), *cert. denied*, 440 U.S. 960, 99 S.Ct. 1503, 59 L.Ed.2d 774 (1978). Indeed, "unless all of the same elements or their equivalents are found in substantially the same situation where they do substantially the same work in the same way, there is no anticipation." *Continental Oil Co. v. Cude*, 634 F.2d 188, 195 (5th Cir.) (footnote omitted), *cert. denied*, 454 U.S. 830, 102 S.Ct. 124, 70 L.Ed.2d 106 (1981).

[5] The district court found that Wilco failed to establish the existence of any prior art which disclosed all or substantially all of the elements claimed under the Rivet patent. Although Wilco argues that prior public use involved vertical bulkheads, spaced I-beams, and support blocks, there is no suggestion that all three elements were found together in any previous unit. Further, many of the prior uses Wilco urges are in fact found in somewhat similar but distinct situations, such as airplane pontoons. While such uses offer a glimpse of what may have been apparent in the art, they do not provide a sufficient basis upon which to negate novelty. Wilco has not established that the Rivet patent was anticipated in the prior art.

[6] Wilco claims that its burden should be lightened in this case and the presumption of validity lessened, suggesting that the prior art placed before the Patent Of-

2. Section 102(a) provides that one is entitled to a patent unless "the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent."

Prior art may also invalidate a patent even where the invention is not identically disclosed as required by § 102, if the distinguishing feature is obvious. 35 U.S.C. § 103.

free in the course of its review and approval of the Rivet patent was inadequate. *See, e.g., Catholic Protection Service v. American Smelting & Refining Co.*, 594 F.2d 499 (5th Cir.), *cert. denied*, 444 U.S. 965, 100 S.Ct. 453, 62 L.Ed.2d 378 (1979). This claim is not supported by the file wrapper. Although Rivet's application did not list every prior art device which contained some element found on his marsh buggy, it presented the Examiner with the pertinent prior art, including the relevant references to each element distinguishing Rivet's craft from Reynolds' and Reynolds-type crafts.

[9] Wilco again invites our attention to prior art devices which relate to elements of the Rivet invention. But "[t]he linchpin is not whether the individual components of the patent were obvious at the time of the invention, but whether the aggregation produced a new or different result or achieved a synergistic effect." *Continental Oil Co.*, 634 F.2d at 197. In this sense the inquiry under § 103 is whether prior use makes the picture on the jigsaw puzzle, rather than its pieces, obvious.

[10, 11] Because this appeal involves a combination patent, in judging obviousness we look to the aggregate effect. Courts are reluctant to find inventiveness in an amalgamation of old ideas, *see Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 96 S.Ct. 1532, 47 L.Ed.2d 784 (1976), so that combination patents, to be valid, must produce an unexpected, unusual or synergistic result. The inquiry is nothing more than an instance of gestalt analysis: Is the whole greater than the sum of its parts? *Farmhand*, 693 F.2d at 1144-45; *Whitley v. Road Corp.*, 624 F.2d 698 (5th Cir.1980).

[12] Even though many of the elements of the Rivet patent can be separately found in the prior art, the combination is striking. No previous craft was capable of traveling safely for extended periods through stump-filled swamps. None could carry the heavy loads demanded by oil-related exploration and construction. The improvements to prior craft, were merely quantitative. The one craft combining these features—the Rivet model—made a quantum leap in transportation through the swamp. Other machines may have used two of the three modifications Rivet made, but two-out-of-three did not create a new buggy capable of matching the performance of the Rivet craft.³ This synergistic effect of the trial modifications belies the charge of obviousness.

bolstering the court's finding of validity irrespective of the dramatic value of the combination of pontoon, block and beam

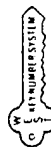
[13] The district court's finding of non-obviousness is further supported by such secondary considerations as commercial success, copying, and previous need and failure. See *Graham v. John Deere Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966). *Continental Oil Co.*, 634 F.2d at 197 & n. 5 (others had tried in vain for three years to produce a working paravane). The limitations of the Reynolds craft, when tested outside its intended uses, were immediately apparent. No definitive improvement was offered for over twenty years. We conclude that the Rivet patent was innovatively different and not readily obvious to one in Rivet's position and is therefore valid.

Infringement

[14] The final issue is whether Wilco's marsh buggy infringes the Rivet patent. Wilco suggests a number of modifications which, it is claimed, distinguish Wilco's product from Rivet's patent. These alterations may suffice to prevent literal infringement of some of the claims of the Rivet patent, but the doctrine of equivalents gives a patentee broad protection from minor deviations. *Ziegler v. Phillips Petroleum Co.*, 483 F.2d 858 (5th Cir.), cert. denied, 414 U.S. 1079, 94 S.Ct. 597, 38 L.Ed.2d 485 (1973).

[15] We need not belabor the point. Suffice it to say that a comparison of the two craft reveals substantial identity of means, operation and result. The differences are cosmetic and trivial. The essence of both vehicles is the same: each relies on Rivet improvements. Wilco's models infringe the Rivet patent.

AFFIRMED.



RICHARD A. CHERAMIE ENTERPRISES, INC., Plaintiff-Appellant.

MT. AIRY REFINING CO., in personam, Defendant-Appellee.

No. 82-3576
Summary Calendar.

United States Court of Appeals,
Fifth Circuit
June 27, 1983

Vessel owner filed action in admiralty to recover charges for towage services and fuel allegedly furnished alleged charterer in charter of push boat. The United States District Court for the Eastern District of Louisiana, Patrick F. Carr, J., granted alleged charterer's motion for involuntary dismissal, and vessel owner appealed. The Court of Appeals, Politz, Circuit Judge, held that finding of fact that vessel owner had not proven that person who allegedly contacted owner's sales representative and requested charter of vessel for towing barges was alleged charterer's agent was not clearly erroneous under either maritime law or Louisiana law.
Affirmed.

1. Shipping \Rightarrow 58(2%)

Finding of fact that vessel owner had not proven that person who contacted owner's sales representative and requested charter of vessel for towing barges was agent of alleged charterer was not clearly erroneous under either maritime law or Louisiana law, notwithstanding alleged charterer's reference in pretrial order to person who contacted owner's sales representative as its representative. Fed. Rules Civ. Proc. Rule 52(a), 28 U.S.C.A.; LSA-C.C. art. 2985.

2. Principal and Agent \Rightarrow 8, 14(1)

Under Louisiana law, agency relationship is created by either express appointment of a mandatory under Civil Code or by implied appointment arising from apparent authority. LSA-C.C. art. 2985.

3. Principal and Agent \Rightarrow 14(2)

To establish implied agency under Louisiana law between person who arranged for push boat charter and gave daily instructions to vessel and alleged charterer, it had to be shown that alleged charterer, as principal, made some manifestation to vessel owner and that vessel owner reasonably relied on putative agent's purported authority as direct consequence of alleged charterer's representations.

4. Principal and Agent \Rightarrow 23(1)

Under Louisiana law, agency may not be established by words of purported agent.

5. Principal and Agent \Rightarrow 19

Under Louisiana law, agency relationship cannot be presumed, but must be clearly established.

6. Principal and Agent \Rightarrow 147(2)

Under Louisiana law, once agency is indicated, party preparing to deal with agent has affirmative duty to determine extent and scope of agent's authority to bind principal.

7. Principal and Agent \Rightarrow 23(1)

Under general agency principles, statements of agent cannot establish existence of agency relationship.

Lemle, Kelleher, Kohlmeier & Matthews, Mark L. Ross, New Orleans, La., for plaintiff-appellant.

Baldwin & Haspel, Conrad Meyer, IV, New Orleans, La., for defendant-appellee.

Appeal from the United States District Court for the Eastern District of Louisiana.

Before CLARK, Chief Judge, POLITZ and HIGGINBOTHAM, Circuit Judges.

POLITZ, Circuit Judge:

We examine the propriety of the trial judge's grant of a Fed.R.Civ.P. 41(b) motion in favor of the defendant. Finding no error in any finding of fact or conclusion of law, we affirm.

Facts

Richard A. Cheramie Enterprises, Inc., filed this action in admiralty against Mt. Airy Refining Company for \$28,092.70, representing charges for towage services and fuel allegedly furnished Mt. Airy in the charter of the push boat VICKIE MARIE, C, from January 8-24, 1981.

Raymond Shipley contacted Robert Cazayoux, a sales representative for Cheramie, and requested the charter of a vessel for towing barges. On January 17, 1981, at the mid-point of the tow, the captain of Cheramie's VICKIE MARIE C refueled and directed that the fuel charges be billed to Green Country Barge Lines. On January 24, 1981, Shipley notified a vice president of Cheramie to terminate the charter. In the interim, the captain of the push boat had, on a daily basis, contacted Shipley for instructions.

Upon termination of the charter, Cazayoux said he billed Mt. Airy on instructions of Shipley, but that Shipley subsequently reported that he was working for someone else and requested that the billing be made to Green Country. Shipley testified that he had informed Cazayoux from the outset that the charter was for Green Country and directed billing to that entity. When an invoice was sent to Mt. Airy, Shipley said he contacted Cheramie's office staff and told them they had billed in error and should send the invoice to Green Country at an address he furnished. Green Country never paid and apparently folded.

The sole issue is whether Cheramie proved that Shipley was an agent acting on behalf of Mt. Airy when he arranged for the charter and gave daily instructions to the VICKIE MARIE C. Cheramie contends that the resolution of this issue is foreclosed by the Pre-trial Order in which Mt. Airy purportedly admitted Shipley's status and authority. In support of this contention Cheramie points to paragraph 6(b) of the Pre-trial Order which reads in pertinent part:

A brief summary of the material facts claimed by defendant, Mt. Airy Refining Company, are:

§ 2144.09 for examples of reasoning supporting obviousness rejections.

When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper. *Ex parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. App. & Inter. 1986). A statement of a rejection that includes a large number of rejections must explain with reasonable specificity at least one rejection, otherwise the examiner procedurally fails to establish a *prima facie* case of obviousness. *Ex parte Blanc*, 13 USPQ2d 1383 (Bd. Pat. App. & Inter. 1989) (Rejection based on nine references which included at least 40 prior art rejections without explaining any one rejection with reasonable specificity was reversed as procedurally failing to establish a *prima facie* case of obviousness.).

If the examiner determines there is factual support for rejecting the claimed invention under 35 U.S.C. 103, the examiner must then consider any evidence supporting the patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the applicant. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under 35 U.S.C. 103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not.

When an applicant submits evidence, whether in the specification as originally filed or in reply to a rejection, the examiner must reconsider the patentability of the claimed invention. The decision on patentability must be made based upon consideration of all the evidence, including the evidence submitted by the examiner and the evidence submitted by the applicant. A decision to make or maintain a rejection in the face of all the evidence must show that it was based on the totality of the evidence. Facts established by rebuttal evidence must be evaluated along with the facts on which the conclusion of obviousness was

reached, not against the conclusion itself. *In re Eli Lilly & Co.*, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990).

See *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984) for a discussion of the proper roles of the examiner's *prima facie* case and applicant's rebuttal evidence in the final determination of obviousness. See MPEP § 706.02(j) for a discussion of the proper contents of a rejection under 35 U.S.C. 103.

2143 Basic Requirements of a *Prima Facie* Case of Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

2143.01 Suggestion or Motivation To Modify the References [R-2]

THE PRIOR ART MUST SUGGEST THE DESIRABILITY OF THE CLAIMED INVENTION

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).

“In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification.” *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. “The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

>In *Ruiz v. A.B. Chance Co.*, 357 F.3d 1270, 69 USPQ2d 1686 (Fed. Cir. 2004), the patent claimed underpinning a slumping building foundation using a screw anchor attached to the foundation by a metal bracket. One prior art reference taught a screw anchor with a concrete bracket, and a second prior art reference disclosed a pier anchor with a metal bracket. The court found motivation to combine the references to arrive at the claimed invention in the “nature of the problem to be solved” because each reference was directed “to precisely the same problem of underpinning slumping foundations.” *Id.* at 1276, 69 USPQ2d at 1690. The court also *rejected* the notion that “an express written motivation to combine must appear in prior art references....” *Id.* at 1276, 69 USPQ2d at 1690.<

In *In re Kotzab*, the claims were drawn to an injection molding method using a single temperature sensor to control a plurality of flow control valves. The primary reference disclosed a multizone device having multiple sensors, each of which controlled an

associated flow control valve, and also taught that one *system* may be used to control a number of valves. The court found that there was insufficient evidence to show that one *system* was the same as one *sensor*. While the control of multiple valves by a single sensor rather than by multiple sensors was a “technologically simple concept,” there was no finding “as to the specific understanding or principle within the knowledge of the skilled artisan” that would have provided the motivation to use a single sensor as the system to control more than one valve. 217 F.3d at 1371, 55 USPQ2d at 1318.

In *In re Fine*, the claims were directed to a system for detecting and measuring minute quantities on nitrogen compounds comprising a gas chromatograph, a converter which converts nitrogen compounds into nitric oxide by combustion, and a nitric oxide detector. The primary reference disclosed a system for monitoring sulfur compounds comprising a chromatograph, combustion means, and a detector, and the secondary reference taught nitric oxide detectors. The examiner and Board asserted that it would have been within the skill of the art to substitute one type of detector for another in the system of the primary reference, however the court found there was no support or explanation of this conclusion and reversed.

In *In re Jones*, the claimed invention was the 2-(2 α -aminoethoxy) ethanol salt of dicamba, a compound with herbicidal activity. The primary reference disclosed *inter alia* the substituted ammonium salts of dicamba as herbicides, however the reference did not specifically teach the claimed salt. Secondary references teaching the amine portion of the salt were directed to shampoo additives and a byproduct of the production of morpholine. The court found there was no suggestion to combine these references to arrive at the claimed invention.

WHERE THE TEACHINGS OF THE PRIOR ART CONFLICT, THE EXAMINER MUST WEIGH THE SUGGESTIVE POWER OF EACH REFERENCE

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art, and all teachings in the prior art must be considered to the extent that they are in analogous arts. Where the teachings of two or more

prior art references conflict, the examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art, considering the degree to which one reference might accurately discredit another. *In re Young*, 927 F.2d 588, 18 USPQ2d 1089 (Fed. Cir. 1991) (Prior art patent to Carlisle disclosed controlling and minimizing bubble oscillation for chemical explosives used in marine seismic exploration by spacing seismic sources close enough to allow the bubbles to intersect before reaching their maximum radius so the secondary pressure pulse was reduced. An article published several years later by Knudsen opined that the Carlisle technique does not yield appreciable improvement in bubble oscillation suppression. However, the article did not test the Carlisle technique under comparable conditions because Knudsen did not use Carlisle's spacing or seismic source. Furthermore, where the Knudsen model most closely approximated the patent technique there was a 30% reduction of the secondary pressure pulse. On these facts, the court found that the Knudsen article would not have deterred one of ordinary skill in the art from using the Carlisle patent teachings.).

FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT SUFFICIENT TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of

varying slope not suggested by combination of prior art references).

FACT THAT THE CLAIMED INVENTION IS WITHIN THE CAPABILITIES OF ONE OF ORDINARY SKILL IN THE ART IS NOT SUFFICIENT BY ITSELF TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS

A statement that modifications of the prior art to meet the claimed invention would have been " well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000) (Court reversed obviousness rejection involving technologically simple concept because there was no finding as to the principle or specific understanding within the knowledge of a skilled artisan that would have motivated the skilled artisan to make the claimed invention); *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999) (The level of skill in the art cannot be relied upon to provide the suggestion to combine references.).

THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) (Claimed device was a blood filter assembly for use during medical procedures wherein both the inlet and outlet for the blood were located at the bottom end of the filter assembly, and wherein a gas vent was present at the top of the filter assembly. The prior art reference taught a liquid strainer for removing dirt and water from gasoline and other light oils wherein the inlet and outlet were at the top of the device, and wherein a pet-cock (stopcock) was located at the bottom of the device for periodically removing the

collected dirt and water. The reference further taught that the separation is assisted by gravity. The Board concluded the claims were *prima facie* obvious, reasoning that it would have been obvious to turn the reference device upside down. The court reversed, finding that if the prior art device was turned upside down it would be inoperable for its intended purpose because the gasoline to be filtered would be trapped at the top, the water and heavier oils sought to be separated would flow out of the outlet instead of the purified gasoline, and the screen would become clogged.).

“Although statements limiting the function or capability of a prior art device require fair consideration, simplicity of the prior art is rarely a characteristic that weighs against obviousness of a more complicated device with added function.” *In re Dance*, 160 F.3d 1339, 1344, 48 USPQ2d 1635, 1638 (Fed. Cir. 1998) (Court held that claimed catheter for removing obstruction in blood vessels would have been obvious in view of a first reference which taught all of the claimed elements except for a “means for recovering fluid and debris” in combination with a second reference describing a catheter including that means. The court agreed that the first reference, which stressed simplicity of structure and taught emulsification of the debris, did not teach away from the addition of a channel for the recovery of the debris.).

THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) (Claims were directed to an oil seal comprising a bore engaging portion with outwardly biased resilient spring fingers inserted in a resilient sealing member. The primary reference relied upon in a rejection based on a combination of references disclosed an oil seal wherein the bore engaging portion was reinforced by a cylindrical sheet metal casing. Patentee taught the device required rigidity for operation, whereas the claimed invention required resiliency. The court reversed the rejection holding

the “suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate.” 270 F.2d at 813, 123 USPQ at 352.).

2143.02 Reasonable Expectation of Success Is Required

OBVIOUSNESS REQUIRES ONLY A REASONABLE EXPECTATION OF SUCCESS

The prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (Claims directed to a method of treating depression with amitriptyline (or nontoxic salts thereof) were rejected as *prima facie* obvious over prior art disclosures that amitriptyline is a compound known to possess psychotropic properties and that imipramine is a structurally similar psychotropic compound known to possess antidepressive properties, in view of prior art suggesting the aforementioned compounds would be expected to have similar activity because the structural difference between the compounds involves a known bioisosteric replacement and because a research paper comparing the pharmacological properties of these two compounds suggested clinical testing of amitriptyline as an antidepressant. The court sustained the rejection, finding that the teachings of the prior art provide a sufficient basis for a reasonable expectation of success.); *Ex parte Blanc*, 13 USPQ2d 1383 (Bd. Pat. App. & Inter. 1989) (Claims were directed to a process of sterilizing a polyolefinic composition with high-energy radiation in the presence of a phenolic polyester antioxidant to inhibit discoloration or degradation of the polyolefin. Appellant argued that it is unpredictable whether a particular antioxidant will solve the problem of discoloration or degradation. However, the Board found that because the prior art taught that appellant’s preferred antioxidant is very efficient and provides better results compared with other prior art antioxidants, there would have been a reasonable expectation of success.).

IV. INFORMATION DISCLOSURE STATEMENT (IDS)

Mere listing of a reference in an information disclosure statement is not taken as an admission that the reference is prior art against the claims. *Riverwood Int'l Corp. v. R.A. Jones & Co.*, 324 F.3d 1346, 1354-55, 66 USPQ2d 1331, 1337-38 (Fed. Cir. 2003) (listing of applicant's own prior patent in an IDS does not make it available as prior art absent a statutory basis); *see also* 37 CFR 1.97(h) ("The filing of an information disclosure statement shall not be construed to be an admission that the information cited in the statement is, or is considered to be, material to patentability as defined in § 1.56(b).").<

2131 Anticipation — Application of 35 U.S.C. 102(a), (b), and (e) [R-1]

35 U.S.C. 102. *Conditions for patentability: novelty and loss of right to patent.*

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or

**>

(e) the invention was described in — (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language; or<

(f) he did not himself invent the subject matter sought to be patented, or

(g)(1)during the course of an interference conducted under section 135 or section 291, another inventor involved therein establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other

inventor and not abandoned, suppressed, or concealed, or (2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). >"When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art." *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001) (claim to a system for setting a computer clock to an offset time to address the Year 2000 (Y2K) problem, applicable to records with year date data in "at least one of two-digit, three-digit, or four-digit" representations, was held anticipated by a system that offsets year dates in only two-digit formats). *See also* MPEP § 2131.02.< "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). Note that, in some circumstances, it is permissible to use multiple references in a 35 U.S.C. 102 rejection. *See* MPEP § 2131.01.

2131.01 Multiple Reference 35 U.S.C. 102 Rejections

Normally, only one reference should be used in making a rejection under 35 U.S.C. 102. However, a 35 U.S.C. 102 rejection over multiple references has been held to be proper when the extra references are cited to:

conviction of a third person, offered against the accused in a criminal prosecution to prove any fact essential to sustain the judgment of conviction. A contrary position would seem clearly to violate the right of confrontation. *Kirby v. United States*, 174 U.S. 47, 19 S.Ct. 574, 43 L.Ed. 890 (1899), error to convict of possessing stolen postage stamps with the only evidence of theft being the record of conviction of the thieves." Note to Paragraph (22), Rule 803, Title 28, Rules of Evidence, U.S.C.A. at p. 594.

The introduction into evidence of Exhibits 51 and 52 deprived Koger of the right of confrontation of witnesses in violation of sixteenth Amendment to the Constitution, indicated in the above-quoted advisory note. The Supreme Court held in *Kirby v. United States*, 174 U.S. 49, 19 S.Ct. 574, 43 L.Ed. 890 (1899), which was a case wherein the accused was being prosecuted for receiving and possessing stolen property, as in our case, that it was improper to allow the introduction of evidence of the conviction of the thieves in a separate non-related proceeding, and that such evidence violated the accused's right of confrontation of witnesses under the Constitution. In that case the court said:

"The principle to be deduced from these authorities is in harmony with the view that one accused of having received stolen goods with intent to convert them to his own use, knowing at the time that they were stolen, is not within the meaning of the Constitution, confronted with the witnesses against him when the fact that the goods were stolen is established by the record of another criminal case with which the accused had no connection and in which he was not entitled to be represented by counsel."

The fundamental error in the trial below was to admit in evidence the record of the conviction of the principal felons as competent proof for any purpose. That

7. No disrespect for the trial judge is intended. He obviously realized the error that had been

those persons had been convicted was a fact not necessary to be established in the case against the alleged receiver; for under the statute he could be prosecuted even if the principal felons had not been tried or indicted. As already stated, the effect of the charge was to enable the government to put the accused, although shielded by the presumption of innocence, upon the defensive as to a vital fact involved in the charge against him by simply producing the record of conviction of other parties of a wholly different offense with which the accused had no connection." 174 U.S. 60-61, 19 S.Ct. 579.

The *Kirby* case had never been overruled and has been cited and followed many times. We adhere to the principles therein stated.

We are convinced that the introduction of the exhibits into evidence subjected Koger to devastating and unfair prejudice, confused the issues and perhaps misled the jury. It could be argued that this phase of the case was presented and tried, as stated by the late Chief Judge Hutcheson of the Fifth Circuit Court of Appeals in *Olinger v. Commissioner of Internal Revenue*, 234 F.2d 823, 824 (1956), too much on the theory of "Give a dog an ill name and hang him."

We hold that the Speedy Trial Act was violated but sanctions are not appropriate in this case. We hold further that the introduction into evidence of Government's Exhibits 51 and 52 was error and the judgment of the trial court is reversed and the case is remanded for a new trial.

Reversed.



made and did what he could to correct it

W. Selden SAUNDERS and Rudkin Wiley Corporation, Plaintiffs-Appellants,

v.
AIR-FLO COMPANY, Robert G. Geiger, and Recreational Supply and Equipment, Defendants-Appellees.

No. 77-2014.

United States Court of Appeals,
Seventh Circuit.

Argued Feb. 21, 1978.

Decided April 28, 1981.

Rehearing Denied May 27, 1981.

Owner of patents directed to the mounting of a windshield or deflector upon cab of a truck brought action for infringement of patents and trademark. The United States District Court for the Northern District of Indiana, Allen Sharp, J., 435 F.Supp. 298, held that patents were invalid for obviousness, and appeal was taken. The Court of Appeals, Fairchild, Chief Judge, held that: (1) patents were not invalid as being anticipated by or obvious in light prior art; (2) trial court erred in finding that accused device was forwardly concealed in a horizontal plane, and thus such aspect of accused shield did not save it from infringing claims one and two of patents, which included recitation that the baffle was forwardly concealed in a horizontal plane; and (3) trial court did not err in finding that accused shield was not mounted in a substantially air impervious relation to the tractor roof, and thus such shield did not infringe claims three and four of patents, which included recitation that the baffle had its lower edge in substantially air impervious relation with cab roof.

Reversed and remanded.

1. Patents \Rightarrow 72(1) f. b.

A previous patent anticipates a purported invention only where, except for insubstantial differences, it contains all of same elements operating in the same fashion.

ion to perform an identical function 35
U.S.C.A. § 102.

2. Patents \Rightarrow 328(2)

Patents No. 3,241,876 and No. 3,309,131 on devices designed to reduce wind resistance of tractor trailers and single chassis trucks were not invalid as being anticipated by and obvious in light of prior art.

3. Patents \Rightarrow 112.1

A patent is to be presumed valid, but the presumption does not exist against evidence of prior art not before the patent office. 35 U.S.C.A. § 282.

4. Patents \Rightarrow 312(5)

Trial court erred in finding that accused device was forwardly concealed in a horizontal plane, and thus such aspect of device did not save it from infringing claims one and two of patents on devices designed to reduce wind resistance in tractor trailer and single chassis trucks, which included recitation that the baffle was forwardly concealed in a horizontal plane.

5. Patents \Rightarrow 312(6)

Trial court did not err in finding that accused shield was not mounted in a substantially air impervious relation to the tractor roof, and thus such shield did not infringe claims three and four of patents on devices designed to reduce wind resistance of tractor trailers and single chassis trucks, which included recitation that the baffle had its lower edge in substantially air impervious relation with cab roof.

Peter C. John, Chicago, Ill., Francis T. Carr, New York City, for plaintiffs-appellants.

Eugene C. Knoblock, South Bend, Ind., for defendants-appellees.

Before FAIRCHILD, Chief Judge, CAS-
TLE, Senior Circuit Judge, and SWYGERT,
Circuit Judge.

FAIRCHILD, Chief Judge

Plaintiffs in this action appeal from the district court judgment¹ of invalidity of Patents No. 3,241,876 ('876) (application filed January 31, 1964 and patent issued March 22, 1966) and 3,309,131 ('131) (application filed February 11, 1966 and patent issued March 14, 1967) and of non-infringement by defendants of the patents.²

W. Selden Saunders (Saunders) is the patentee and owner of patents '876 and '131. Rudkin-Wiley Corporation (Rudkin-Wiley) is the exclusive licensee under the two patents. The patented devices are designed to reduce wind resistance in, respectively, a tractor-trailer combination and

a single chassis truck. Saunders and Rudkin-Wiley on April 8, 1974 instituted this action for infringement against defendants Air-Flo Company (Air-Flo); Robert G. Geiger (Geiger), President of Air-Flo; and Recreational Supply and Equipment. The district court found the patents invalid as being anticipated by and obvious in light of the prior art.³ The district court also found that defendants' product had not infringed the Saunders patents.⁴

The Saunders device is a baffle mounted above the roof of the cab of a tractor or a semi-trailer in the case of '876⁵ and of a truck in the case of '131.⁶ The purpose is to

tioned a distance from the front of the trailer equal to approximately 0.7 the half width of the trailer.

(3) In combination with a tractor-trailer vehicle having a gap between the tractor and the trailer, said tractor having a cab with the roof thereof of less height than said trailer, a substantially solid upstanding air flow deflecting baffle mounted to extend above the cab roof and having its lower edge in substantially air impervious relation therewith, for diverting the substantially entire air flow relatively widely in a manner to avoid entry of the air stream into the gap, thereby creating at least one low pressure air eddy in said gap to reduce the frontal air pressure against the trailer, the diverted air reattaching to the trailer at points spaced rearwardly of said gap, said baffle being of a height between 0.5 and 0.9 of the difference in height between the tractor cab roof and the roof of the trailer, and being positioned a distance from the front of the trailer equal to between 0.3 and 2.0 times the half width of the trailer.

(4) The structure of claim 3 wherein said baffle is positioned immediately adjacent the rear of the cab roof.

6. The '131 patent made the following claims:

(1) A means of reducing linear wind resistance in combination with a single chassis vehicle including a cab having a windshield, an engine compartment having its top terminating below said windshield and a body having a height in excess of the height of said cab and having its front edge closely juxtaposed to the rear of said cab leaving no appreciable air gap therebetween, said means comprising an upstanding baffle mounted adjacent the forward edge of the cab at the top of the windshield so dimensioned as to deflect the airstream impacting the windshield and baffle over the top of said front edge of the body, the airstream reattaching to the top

divert the air flow so that it will not strike the front of the trailer or truck body and will reattach smoothly to the top of the trailer or body. In the case of the semi-trailer the diversion also avoids entry of the air stream into the gap between tractor and trailer, and a low pressure air eddy occurs in the gap. The advantage is that the air drag is less than would occur if the air flow struck the face of the trailer without being deflected by the baffle. Fuel consumption is reduced.

As stated in the application for '876, 'the device of the instant invention produces a relatively wide diffusion of the air impacting the forward portion of the trailer, and causes the same to readhere to the body of the [trailer] rearwardly of the front portion thereof in a relatively smooth and even manner, while at the same time creating a low pressure area or bubble between the tractor and the front of the trailer, so that the trailer will, in effect, be pushing forward against reduced rather than increased resistance.'

Claims 1 and 2 of '876 position the baffle forward of the face of the trailer at a distance approximately 0.7 of the half-width of the trailer. The baffle is inclined rearwardly, and forwardly convexed in a horizontal plane. Its height is substantially 0.7 of the difference in height between the tractor roof and the trailer. Most of the claims of '131 position the baffle at the top

of the body at a point rearwardly of said forward edge in a smooth linear flow defining a low pressure air eddy on the cab roof between said baffle and said front edge of said body, the height of the windshield plus the height of the baffle being equal to between 0.6 and 0.8 of the height of said body above said engine compartment.

(2) The structure of claim 1 wherein said baffle extends transversely of the cab.

(3) The structure of claim 1 wherein said baffle is inclined rearwardly vertically.

(4) The structure of claim 1 wherein the ends of said baffle are inclined rearwardly relative to the transverse plane of the baffle.

(5) The structure of claim 4 wherein said inclined ends are arcuate and forwardly convexed.

(6) The structure of claim 1 wherein, when h equals the combined height of said windshield and said baffle and said upstanding, ing baffle and H equals the height of said

divert the air flow so that it will not strike of the windshield and do not state a formula for height

[1] 35 U.S.C. § 102 contains the requirement of novelty for a patent. The district court found that "[t]he respective combinations and arrangements of parts shown in the Stamm patent and in the University of Maryland (UM) publications are the same as those claimed in the Saunders patents, and hence are effective anticipations under 35 U.S.C. § 102(a)" 435 F.Supp. at 300. The district court erred in finding anticipation.

Its key error in this regard was its view that because the Saunders baffle, the UM fairing and the Stamm conduit each can be said to deflect air, the fairing and conduit anticipated the Saunders patents. As this court has indicated, "[a] previous patent . . . anticipates a purported invention only where, except for insubstantial differences, it contains all of the same elements operating in the same fashion to perform an identical function." *Popoel Brothers, Inc. v. Schick Electric, Inc.*, 494 F.2d 162, 164 (7th Cir. 1974). *Accord, Reynolds Metals Co. v. Aluminum Co. of America*, 609 F.2d 1218, 1220 (7th Cir. 1979), cert. denied, 446 U.S. 989, 100 S.Ct. 2976, 64 L.Ed.2d 847 (1980); *Illinois Tool Works, Inc. v. Sweetheart Plastics, Inc.*, 436 F.2d 1180, 1182-83 (7th Cir.), cert. dismissed, 403 U.S. 942, 91 S.Ct. 2270, 29 L.Ed.2d 722 (1971). The differences between Stamm and UM, on one hand, and Saunders on the other, are

body above a line extending along an extension of the line of division of air between the windshield and the said engine compartment, h equals 0.7H.

(7) The structure of claim 1 wherein the half-width of said baffle is substantially equal to 0.7 of the half-width of the body.

(8) The structure of claim 1 wherein the distance of said baffle from the front of said body is substantially equal to 0.7 of the half-width of the body.

(9) The structure of claim 6 wherein the half-width of said baffle is substantially equal to 0.7 of the half-width of the body.

(10) The structure of claim 6 wherein the distance of said baffle from the front of said body is substantially equal to 0.7 of the half-width of the body.

(11) The structure of claim 9 wherein the distance of said baffle from the front of said body is substantially equal to 0.7 of the half-width of the body.

substantial and are shown *intra* in the discussion regarding obviousness.

A patent is invalid under 35 U.S.C. § 103 for obviousness "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103. The district court considered the Stamm patent, the University of Maryland tests, and several bug deflector patents and other known principles in determining that the Saunders patents were invalid for obviousness.

As the district court recognized, the analytical steps for determining obviousness are set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966).

While the ultimate question of patent validity is one of law, *A. & P. Tea Co. v. Supermarket Corp.*, [340 U.S. 147 (1950)] *supra*, at 155, [71 S.Ct. 129, at 131, 95 L.Ed. 162] the § 103 condition, which is but one of three conditions, each of which must be satisfied, lends itself to several basic factual inquiries. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unresolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. 383 U.S. at 17-18, 86 S.Ct. at 693-694.

SCOPE AND CONTENT OF THE PRIOR ART

[2] Crucial to the question of validity of the Saunders patents is an understanding of 7. A fairing is a smooth contoured surface designed to provide streamlining by keeping air

the aerodynamic devices under consideration, fairings, conduits, and baffles. Aerodynamicists have long recognized that reduction of aerodynamic drag (air drag) of a vehicle will increase efficiency and save fuel. We must now view the scope and content of the prior art considered by the district court.

The University of Maryland conducted over 7,000 wind tunnel tests of Trailmobile trailers in 1953 to determine whether various devices or design changes would reduce air drag. The tests were of "trailer bodies with rounded front corners, rounded rear corners, various tractor-trailer gaps, streamlined tail fairing for trailer, deflecting vanes and the removal of underneath accessories and cross members." The tests were all concerned with methods of streamlining, so as to keep the air passing the trailer attached to it in order to avoid areas of air turbulence and reduce air drag. One of the methods used was attaching a full fairing 7 from the tractor to the trailer so that the air hitting the tractor cab and fairing would remain attached and flow along the fairing until it reached the top front of the trailer, from which point the air would then proceed along the top of the trailer to the rear, remaining attached. The fairing eliminated the gap between the tractor and the trailer, enclosing it entirely. The UM study recognized that such a fairing would be impractical because it would prevent the tractor from turning independently of the trailer, but concluded that "a fairing approaching this type that does not attach to the trailer may not be unreasonable."

The Stamm patent, No. 2,863,695, applied for in 1954, issued December 9, 1958, discloses that Stamm considered the conclusions reached after comprehensive wind tunnel tests (evidently the UM tests) including the reduction of drag which would result from streamlining, and the infeasibility of enclosing the space between the tractor flow attached to its surface from the tractor roof to the trailer roof.

and trailer. He directed his attention to providing a device which would control the air flow between the tractor and trailer so as to significantly reduce the drag losses that normally result from the air flow turbulence in this region. His solution was a conduit type means on the rear top and side portions of the tractor cab, receiving the airstream passing over the tractor cab and guiding and discharging the airstream toward the top and side portions of the front end of the trailer. Alternatively he would, in addition, provide conduit means on the surface portions of the trailer to receive the airstream after it left the conduit on the tractor and discharge it along the surface of the trailer. As Stamm described one embodiment, in part:

"the cab conduit or shell member will cause airstream flow along the top and sides of the cab to be directed rearwardly in such a fashion that it will be directed into the trailer-mounted conduit shell member and thereafter discharged along the top and sides of the trailer body in a fashion that tends to reduce airstream turbulence and thereby reduce drag losses."

(References to drawings omitted.)

There is no evidence that the Stamm device was ever effectively used.

The Examiner cited as references in '876 Stamm, Huet U.S. No. 2,234,906 (1941), and Rix Great Britain No. 734,735 (1955). A summary of the conclusions of the University of Maryland tests was set forth in Stamm.

Huet in part discloses deflecting devices adjacent the side edges of a car of a train at its rear end to deflect air currents outwardly away from the gap between that car and the car behind it.

Rix described other bug deflectors mounted at the front of an automobile hood, and disclosed as its subject an air deflector across the hood at a position nearer to the windshield than to the front:

"Thus the air flowing over the bonnet top, instead of striking the steeply inclined windshield, is deflected by the less steeply inclined deflector on the bonnet top

and directed upwardly to or over the top of the windshield, the streamlining effect thereby being enhanced, wind noise being replaced, the windshield being kept clear for longer periods, and the driver's view of the road not being interfered with in any way."

A reference cited in '131 was Herrmann, German No. 1,022,481 (1955), directed to an air deflector projecting above the roof of an automobile having a roof opening in a sliding closure.

The additional prior art considered by the district court, included the following:

a. A group of bug (or rain) deflector patents—Hoag, No. 2,296,956 (1940); Heintz, No. 2,220,715 (1940); Metzger, No. 2,229,516 (1941); Parke, No. 2,338,199 (1944); McVicker, No. 2,644,716 (1953) and French Patent No. 1,067,101 (1954). The district court said, "The patents for bug deflectors disclose the provision of a deflector on a front lower portion of a vehicle serving to separate air therefrom and avoid impact of the air flow on the front surface of a higher rear portion of the vehicle, such as a windshield." Finding of Fact at 42. Rix, which was cited by the Examiner, is similar to this group.

b. Lillie, No. 1,777,569 (1930) disclosing an auxiliary windshield, the equivalent of the no-draft panels long used on automobiles.

c. Hornke, No. 2,914,231 (1959) relating to automobile luggage carriers adapted for roof mounting. The patent recognized that luggage carried atop a car created several problems, including an increase in wind resistance with a consequent lessening of gasoline economy. Hornke proposed use of an angled shield in front of the luggage carrier which would "reduce wind resistance against the carrier and protect the luggage against wind, insects, rain, and other foreign matter." Hornke referred to the function accomplished by the shield as that of "providing" streamlining to the carrier to minimize wind resistance. The Hornke shield is directly attached to the luggage carrier at the front of the carrier

and the drawings accompanying the patent show the shield to extend above the height of the carrier. A drawing depicting a cover for the carrier indicates that Horneke recognized that the top of the luggage might be the same height as the shield.

The district court found that the principle of and use of a windshield or baffle as a protection against air flow pressure and the creation of low pressure eddies behind a wind baffle was known and illustrated by the noted Italian scientist Leonardo da Vinci and was discussed in *Fluid Dynamic Drag* by Hoerner, before Saunders. The illustration in the Hoerner text referred to, however, was a tracing described as "Flow pattern past a bluff obstacle." The text explained that the original drawing was "of patterns as [da Vinci] had determined them in water."

The district court also found that "[i]t was commonly known by aerodynamicists that the spacing between a pair of bodies or the size of one body relative to the other will vary the drag on the second body as shown by experiments done in Paris in 1914." The finding is supported by the testimony of defendants' expert.

DIFFERENCES BETWEEN THE PRIOR ART AND THE CLAIMS

The patents and publications which were before the court disclosed that (1) streamlining of a tractor-trailer combination would lower air drag and improve gasoline efficiency; (2) a fairing connecting a tractor and a trailer would accomplish streamlining, but was not practical because it would not allow the tractor to turn; (3) a pressure area would be created behind a shield or other barrier preventing the passage of wind; (4) a baffle would cause the separation of air from a surface; and (5) Stamm suggested that conduits could be constructed on top of the tractor to divert the airstream so that it would not strike the face of the trailer, but travel along its top and side surfaces. There was testimony that the Stamm structure is not a baffle.

8. Appellee also views these terms and "baffle" as interchangeable because all of these devices

The University of Maryland test was concerned with streamlining, maintaining a flow attached to the vehicle with limitations on the turbulence of the air flow in the vicinity of the vehicle. The district court viewed the fairing in these tests as anticipating the Saunders baffle. 435 F.Supp. at 300. The problem we have with this conclusion is that the district court viewed "fairing" and "deflector" as interchangeable terms,⁸ whereas the fairing does not deflect air from the surface but rather provides a new surface along which the air will flow. Plaintiff's expert witness, aerodynamicist A.M.O. Smith, testified that the University of Maryland fairing was a streamlining device and did not create air separation.

A dictionary definition of "baffle" is "something for deflecting, checking, or otherwise regulating flow, as: A. a plate or wall for deflecting gases or other fluids" Webster's New International Dictionary, 3d ed. at 162. Witness Smith defined baffle as "something that is essentially broadside on, so it has separation behind it, . . ." and as "something that tends to obstruct the flow in some manner." Smith contrasted baffle with conduit, which he indicated is "something through which a fluid flows . . ." and as definitely not a baffle. The Stamm patent utilized a conduit through which the flow of air was channeled. In contrast, the Saunders baffle obstructed rather than channeled the flow of air. Although both can be said to deflect the flow of air, there are very significant differences in many respects, such as abruptness, turbulence, and resulting low pressure area.

In addition to achieving air deflection by a different method from Stamm's, the Saunders baffle is structurally different and some of the claims call for a range of placement and size for the baffle which distinguish it further from either the University of Maryland or the Stamm prior art.

⁸ "serve the function of deflecting and regulating air flow" . . . Appellee's brief at 13.

(Cite as 646 F.2d 1201 (1981))

The various bug deflectors in the prior art are all baffles. Plaintiffs adduced testimony, however, indicating that bug deflectors on automobiles increase air drag. We cannot find any evidence to the contrary to support the district court's finding that bug deflectors reduced air drag.

It is clear that prior art showed that air pressure would be reduced behind a baffle mounted on a moving vehicle. Windshields on open vehicles are illustrations. The Saunders' claims indicate that the deflection of air will both create a low pressure area in front of the trailer and will divert air which will reattach itself to the trailer roof instead of striking the face of the trailer.

The size and positioning of the Saunders shield differ significantly from the size and positioning of the bug deflectors and the Horneke shield. In order to avoid interference with the driver's vision, the bug deflectors were required to be much shorter in relation to windshields than the Saunders shield is designed to be in relation to the height from the top of the tractor to the top of the trailer. On the contrary, the Horneke shield is shown in the drawings to be significantly higher than the luggage rack and the same height as the luggage it is meant to shield.

Put in other terms, the prior art included the University of Maryland concept of altering the shape of the tractor cab by adding a fairing in order to reduce air drag by streamlining. It included the Stamm concept of a structure atop the cab at its rear to channel and turn the airstream so as to flow along the trailer without striking its face. It included the bug deflector concept that relatively small baffles on an automobile hood would direct air currents (and bugs) up and over the windshield. There is a known principle that varying the relative size of two bodies in tandem, and the spacing between, would vary the wind resistance of the combination. A further principle is that low pressure eddies exist behind a wind baffle.

The University of Maryland and Stamm devices differed from Saunders in that they

are not baffles. Whether or not the bug deflectors reduced air drag of an automobile, they were designed for other objectives. Although the known principles referred to are consistent with the reduction of air drag produced by Saunders, there is no evidence that anyone previously sought to reduce the air drag of a tractor-trailer combination by placing a baffle atop a tractor cab, or any equivalent arrangement.

LEVEL OF ORDINARY SKILL IN THE PERTINENT ART

The third *Graham* step is to resolve the level of ordinary skill in the pertinent art. The district court did not specify what he considered the pertinent art, nor the level of ordinary skill therein, although he made reference to "capabilities of persons working in the art to solve routine engineering problems." The parties have not addressed argument to this point. We view the pertinent art as the design of trucks and trailers and the level of ordinary skill as that of an educated engineer with experience in such design, although not an expert in aerodynamics.

We are to consider whether the Saunders solution would have been obvious to a hypothetical person addressing the same problem, possessing that degree of skill, and having all the prior art at hand. See *Re- public Industries, Inc. v. Schlage Lock Co.*, 592 F.2d 963, 975 (7th Cir. 1979).

RELEVANT SECONDARY CONSIDERATIONS

Under *Graham*, secondary considerations such as commercial success or failure of others to solve the same problem may have relevancy.

Saunders' device, manufactured by plaintiff Rutkin-Wiley, has enjoyed considerable commercial success. Sales increased to 4,000 units per year, 1969 to 1973. They almost doubled in 1974 and rose to 12,000 in 1976, the year before trial. Originally Saunders had tried unsuccessfully to interest six major truck manufacturers in his device. They all now frequently buy the

(Cite as 446 F.2d 1201 (1981))

device from Rudkin-Wiley for their customers.

The district court found that "any commercial success achieved by R.W. [Rudkin-Wiley] was the result of sales promotion and of outside factors, such as the OPEC oil crunch and government pressure on truck manufacturers." 435 F.Supp. at 302. Mr. Wiley had testified to relatively small expenditures for promotion in the earlier years, but \$25,000 in the years 1973-75 and \$80,000 in 1976. He also indicated that sales "took off" at the time of the 1973 OPEC oil crunch. The court's finding is not clearly erroneous.

Because of these circumstances the commercial success is less likely to raise the issue that many skilled people had addressed the problem over time without finding the solution.

The University of Maryland Wind Tunnel Operations Department conducted its tests of Trailmobile Trailers in 1953. The "tests were conducted to measure the drag of standard tractor trailer combinations and to explore methods of drag reduction." Various modifications of tractor-trailers were tested to see whether and to what extent they would reduce wind resistance. One of the proposals for future action was to achieve a more streamlined body. No attempt was made to test a device similar to Saunders' baffle. We are not shown the qualifications of those in charge of the tests, but it seems safe to assume they possessed a substantial degree of pertinent skill. The Saunders device was not obvious to them although they were addressing the problem for which we now know it was a "significant solution."

Mr. Stamm appears to have been knowledgeable, and addressed the problem, but failed to produce the Saunders solution.

Plaintiff's witness Smith, an aerodynamic expert and University professor, testified: "It's not just another windshield. It is the neat combination of so deflecting the air, so positioning it, and so sizing it that it does exactly this kind of thing [pushing the flow up so it comes over the top of the trailer] at its optimum position . . .

So it is an interesting and subtle kind of drag device and end up with a net savings."

We note comments of the district court, 435 F.Supp. at 301-02 suggesting that he may have assumed that when an invention is a combination of old elements a synergistic effect must be identified before the invention can be found not to have been obvious. That is not an appropriate requirement. *Republic Industries, Inc. v. Schlage Lock Co.*, 592 F.2d 963, 969 (7th Cir. 1979).

[3] A patent is to be presumed valid, 35 U.S.C. § 282, but the presumption "does not exist against evidence of prior art not before the Patent Office." *Republic Industries*, 592 F.2d at 973.

Rix, a Britain patent, was cited by the Examiner. The other bug deflector patents were not cited, but they do add significantly to Rix. Huet was cited, and Lillie was no more pertinent than Huet. Hornke disclosed a slanting shield for luggage carrier to be located on the roof of an automobile. It has no bearing on the question whether Saunders' invention was obvious.

This leaves the two demonstrations of scientific principles: (1) the da Vinci drawing indicating eddies of low pressure behind a baffle in a stream of water, and (2) the Paris experiment indicating that the spacing between a pair of bodies or the size of one body relative to the other will vary the drag on the second body. There is nothing to suggest that the Examiner had these principles in mind.

It is our judgment, however, that these two elements of prior art neither alone nor in conjunction with the other elements before us demonstrate that the Saunders devices would have been obvious to a person of ordinary skill in the pertinent art. The parties to this action have not argued that the considerations as to validity of the '131 patent are significantly different from those involved in the '876 patent. Although our analysis has been in terms of the '876 patent for tractor-trailer combinations, we

also conclude that the '131 patent has not been shown to be invalid.

INFRINGEMENT

The district court, having concluded the patents were invalid, dealt only "briefly" with infringement. Argument by the parties on this issue was similarly brief.

We have reviewed the court's findings and conclusions dealing with two aspects of the issue of infringement, finding error as to one, and no error as to the second. In a third, we conclude that the district court's assertion that the doctrine of file wrapper estoppel "requires the conclusion that Defendants have not infringed Plaintiffs' patents" is at least overboard.

Under the circumstances we want to make it clear that the district court's opinion, and findings and conclusions as to infringement, other than specifically addressed and found not to be in error in this opinion, are not law of the case, governing further proceedings.

[4] Claims 1 and 2 of '876 included the recitation that the baffle is "forwardly convex in a horizontal plane." The district court found that the Air-Flo accused device is "forwardly concave in a horizontal plane." We do not agree.

The Air-Flo shield is similar in shape to a snow plow, with its point toward the front. Each side portion or shank is curved, so that each shank, taken separately, could be termed forwardly concave in a horizontal plane. Considered as a unit, however, the point is well forward of the two ends.

The only testimony addressed to the issue was that of plaintiff's witness Smith. He testified that "[g]rossly, it's 'forwardly concave.' Locally, it is concave . . . But grossly, it certainly is 'forwardly convex.'" The record includes pictures and drawings of the Air-Flo shield. We consider that the Air-Flo shield is "forwardly convex in a horizontal plane" and the district court's finding that the shield is forwardly concave is clearly erroneous. Thus this aspect of the Air-Flo shield does not save it from infringing claims 1 and 2 of '876.

Claims 3 and 4 of '876 included the recitation that the baffle "[have] its lower edge in substantially air impervious relation [with the cab roof]." The district court found that the accused device, spaced from four to five and one-half inches above the cab, does not have its lower edge in air impervious relation with the cab roof. We agree.

[5] It is undisputed that the Air-Flo shield is mounted with its lower edge a few inches above the roof of the tractor. Defendants argue that because of the gap, their shield cannot be said to be in substantially air impervious relation with the roof. Plaintiffs argue that because little or no air actually flows front to rear through the gap when the tractor is moving forward, the structure is substantially air impervious.

A dictionary definition of impervious is "Not allowing entrance or passage through; impenetrable." Webster's New International Dictionary, 3d ed. at 1134. The '876 specifications do not define the term nor otherwise explain or discuss it.

Plaintiffs' witness Smith explained his understanding of the term "air impervious" as follows:

It means that the surface—the bottom is not truly—truly attached or absolutely impervious like exactly matched to the top of the cab of the truck.

But it means that as far as the air is concerned, there is little air flow, or maybe no air flow through there, that it just acts impervious to the air.

Smith described tests showing that a gap of up to six inches between the tractor roof and defendants' device would not have any effect upon its eddy-creating and drag-reducing effects. Six inches was larger than the gap recommended by defendants for use of its product. When asked whether there would be any passage of air between the deflector and the roof when an Air-Flo device was mounted up to six inches above the tractor roof, Smith responded: "No. It wouldn't significantly change the flow . . . The air flow passing through is not sufficient enough to change the pattern . . .

The eddy and the flow up and over the top of the trailer." Smith also testified that at certain levels of gap there was a flow of air from the rear to the front of the gap.

Given the ordinary meaning of "impervious," the lack of any insight provided in the patent into the concept of "substantially air impervious relation," and given the Smith testimony, we think the district court did not err in finding that the Air-Flo shield was not mounted in a substantially air impervious relation to the tractor roof. Accordingly, Air-Flo did not infringe claims 3 and 4 of '876.

The judgment appealed from is reversed. The cause remanded for further proceedings is consistent with this opinion. To avoid any question whether the further proceedings will be a new trial for the purpose of Circuit Rule 18, we direct that the further proceedings be heard by Judge Allen Sharp, who conducted the original trial.



Georgene PASKULY, Plaintiff-Appellee,

v.

MARSHALL FIELD & COMPANY,
Defendant-Appellant

No. 80-2207.

United States Court of Appeals,
Seventh Circuit.

Argued Jan. 9, 1981.

Decided April 28, 1981.

Employee filed sex discrimination suit against employer. After the employee filed an amended complaint seeking to transform her action into a class action on behalf of all similarly situated female employees, em-

* Senior District Judge Dudley R. Bonsor of the Southern District of New York is sitting by designation.

ployer moved to strike the class allegations. The United States District Court for the Northern District of Illinois, Abraham L. Marovitz, J., denied the motion to strike and employer appealed. The Court of Appeals held that where the original complaint alleged that the employer engaged in practices of discrimination against women because of their sex, the employer was required by on notice that it might be required to defend its employment practices from charges of class-based discrimination and the amended pleading therefore related back to date of the original pleading for purposes of the 90-day limitations period of Title VII.

Affirmed.

Civil Rights — 40

Where original complaint alleged that employer engaged in practices of discrimination against women because of their sex, employer was thereby on notice that it might be required to defend its employment practices from charges of class-based discrimination and amended pleading therefore related back to date of original pleading for purposes of 90-day limitations period of Title VII. Civil Rights Act of 1964, § 706(e, f), (f)(2, 4, 5) as amended 42 U.S.C.A. § 2000e-5(f); Fed. Rules Civ. Proc. Rule 15(c), 28 U.S.C.A.

Nina G. Stillman, Chicago, Ill., for defendant-appellant.

Judson H. Miner, Davis, Miner & Barnhill, Chicago, Ill., for plaintiff-appellee.

Before PELL and WOOD, Circuit Judges, and BONSAL, Senior District Judge.*

PER CURIAM.

Plaintiff Georgene Paskuly instituted this action on June 23, 1978 in the United States District Court for the Northern District of Illinois, Eastern Division. The complaint alleged that her employer, defendant Mar-

shall Field & Company, had discriminated against her because of her sex. On October 25, 1979 plaintiff filed an amended complaint seeking to transform her action into a class action on behalf of all similarly situated female employees of the defendant. Defendant moved to strike plaintiff's class allegations on the ground that the plaintiff failed to assert them within 90 days of her receipt of her right-to-sue letter from the Equal Employment Opportunity Commission ("EEOC"). The district court denied defendant's motion, and it appeals. We affirm.

In her amended complaint, plaintiff alleges that the claims of the class arose from the same employment practices from which her individual claim arose. The amended pleading therefore "relates back" to the date of the original pleading under Rule 15(c) of the Federal Rules of Civil Procedure, which preserves the amended complaint from operation of the 90-day limitations period of Title VII, 42 U.S.C. § 2000e-5(f). *Bernstein v. National Liberty International Corp.*, 407 F.Supp. 709 (E.D. Pa. 1977); see also *Badillo v. Central Steel & Wire Co.*, 495 F.Supp. 299 (N.D. Ill. 1980); *Harshaw v. Pan American World Airlines*, 70 F.R.D. 462 (D.D.C. 1975); *Silverman v. Lehigh University*, 19 FEP Cases 983 (E.D. Pa. 1976). We note that the original complaint alleged that defendant engaged in practices that discriminated against women because of their sex; the defendant was thereby on notice that it might be required to defend its employment practices from charges of class-based discrimination. See *Staren v. American National Bank & Trust Company of Chicago*, 529 F.2d 1257 (7th Cir. 1976); *Unilever (Raw Materials) Ltd. v. M/T Stolt Bosel*, 77 F.R.D. 384 (S.D.N.Y. 1977). In view of this notice, we believe that the district court's finding that the defendant was not prejudiced by plaintiff's amendment was not clearly erroneous.

Moreover, the filing of the EEOC charge also placed defendant on notice of the likelihood of a class-wide action later being maintained against it. In view of the broad-based nature of the original com-

plaint, we therefore cannot agree with the district court that defendant was "put off notice" of the possibility of a class action when plaintiff instituted this action in an individual capacity. See *Romasanta v. United Airlines, Inc.*, 537 F.2d 915, 918 n.6, *aff'd sub nom. United Airlines, Inc. v. McDonald*, 432 U.S. 385, 97 S.Ct. 2464, 52 L.Ed.2d 423 (1977).

We note that the district court has not passed on plaintiff's request for class certification, pursuant to Fed.R.Civ.P. 23.

The judgment of the district court is affirmed.



INTERNATIONAL ASSOCIATION OF
BRIDGE, STRUCTURAL AND ORNA-
MENTAL IRON WORKERS LOCAL
NO. 111, a labor organization and Rob-
ert O. Figg, an individual, Plaintiffs-Appellees,

v.

Allen DOUGLAS et al., as Trustees of
Iron Workers Tri-State Welfare Plan,
Defendants-Appellants.

No. 80-1644.

United States Court of Appeals,
Seventh Circuit.

Argued Jan. 7, 1981.

Decided May 1, 1981.

Trustees of a multiunion, multiemployer employee welfare fund appealed from a judgment of the United States District Court for the Northern District of Illinois, Eastern Division, J. Sam Perry, J., which held that trustees lacked the authority to amend the welfare plan so as to limit the eligibility for benefits of employees whose employers had ceased to make contributions to the fund. The Court of Appeals, Bonsor,

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